Summer 6-2021

Silver Bow Creek/Butte Area NPL Site Butte Priority Soils Operable Unit

Pioneer Technical Services, Inc.

Atlantic Richfield Company

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June 4, 2021

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RE: Revised Draft Final Quarterly Operations and Maintenance Report Butte Treatment Lagoon System – Fourth Quarter 2020

Agency Representatives:

I am writing to you on behalf of Atlantic Richfield Company to submit the *Revised Draft Final Quarterly Operations and Maintenance Report Butte Treatment Lagoon System – Fourth Quarter 2020* along with the response to Agency comments provided April 6, 2021. The report and appendices may be downloaded at the following link:

Link:
https://pioneertechnicalservices.sharepoint.com/:f:/s/submitted/EhoZLmdAwFFLitarEnWhXGYBMUlesYlhheMQ2UScWDbg-g

Agency comments are listed below followed by Atlantic Richfield Company's response.

Specific Comments

1) Section 4.0 and Section 7:
a. Page 2, Paragraph 1: Please include that mercury results that were generated using the appropriate EPA method 245.1 LL had no exceedances.

> **Atlantic Richfield Response:** The following text has been added to Section 4.0 and 7.0: "There were no exceedances noted for the remaining mercury analysis performed using EPA method 245.1 LL during the fourth quarter."

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b. Page 3, Paragraph 2: While the drop-in liming rate on October 28th from 120 to 115 mg/L is noted in the text, there is also a decrease shown in the actual lime rate on November 12 to 111 mg/L. This corresponds with a decrease in amount of lime used between November 11 and 12, 661 kg, which is lower than the amount used in the day before and the day after, 711 and 712 kg respectively. The event logs note a screw conveyor motor replacement occurred on November 11 and that a lime delivery was received on November 12, but it is unclear if these activities affected the liming rate reduction that was recorded. Please include this observation within the text as a potential cause of the metals exceedances observed in the November 12 effluent samples and provide an explanation as to what may have caused the drop-in liming rate.

Atlantic Richfield Response: The reduction in lime rate and total lime delivered on November 11 was due to the maintenance activities noted and having the lime feed system shut down for approximately 1 hour to facilitate replacement of the screw conveyor drive motor. Typical residence time at the observed flows is approximately 5-6 days. The 24-hour automatic composite sampling at EFS-07 (SS-1) began sample collection on November 11 at 8:00 a.m. and completed sampling on November 12 at 8:00 a.m. Flows affected by the temporary suspension of lime addition were unlikely to have passed through the lagoon system during the time of sample collection at EFS-07 and are implausible to be related to the excursion noted on November 12.

There were no operational changes or issues noted prior to the November 12 sampling date and the samples collected prior to and immediately following the November 12 sample event continued to be within normal ranges for all analytes. The only observation of significance was that the lagoons were noted to have frozen over on November 9, 2020, and the lime rate had been lowered from 120 milligrams per Liter (mg/L) to 115 mg/L on October 28, 2020, as part of winter operations. Pace Laboratory completed a re-analysis of the original digested sample and also completed analysis directly from the original sample container to confirm the results.

The operations team did note that the influent sample collected on November 2, 2020, had elevated concentrations for arsenic, copper, and iron, possibly due to the discharged water from the BRW pumping test that was completed on October 30, 2020.

c. Page 3, Paragraph 3: Please include silver, mercury, and lead in the list of metals that had elevated concentrations in the influent on November 2, 2020.

Atlantic Richfield Response: Text has been added to include elevated concentrations of silver, mercury, and lead in the influent sample collected on November 2, 2020, as requested.

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d. Page 3-4, Paragraph 5-9: A corrective action plan is needed to address the laboratories loss of ability to use the appropriate EPA method 245.1 LL that resulted in eight samples with detection limits above the human health standard. This could include, but not be limited to, having a standby secondary laboratory that the samples could be shipped to and have samples run with the appropriate method if a similar setback at the primary laboratory occurs in the future.

Atlantic Richfield Response: Unfortunately, there are no laboratories within the Pace network or outside of the Pace network that can meet the detection limit achieved by Pace for method LL 245.1. Pace does have the ability to analyze low level mercury by EPA 1631, which has detection limits much lower than our limit by LL 245.1. During previous discussions with Pace and Agency representatives to potentially move to method 1631, it was decided to not move to method 1631 due to the majority of historical results for mercury being reported as non-detect at EFS-07, additional costs for field sampling, and the higher associated analytical cost. For the previous 2 years (2019 and 2020), 12 samples out of 210, or 5.7%, were reported above the reporting limit of 0.00001 mg/L, none were reported above the Human Health standard of 0.00005 mg/L. Pace has inquired into possible options outside of the Pace network to obtain lower limits. The method used for analysis was 245.7 and not 245.1.

To help prevent future instrumentation issues, Pace laboratory decided to construct a separate room for the lower-level mercury instrument. It was during the construction time that method LL 245.1 was not available, and the alternate mercury method was used with the higher reporting limits. Due to these upgrades, future issues are not anticipated.

In addition to the above corrective actions that have been completed, if the mercury analysis is not available by method LL 245.1, Pace will be instructed to perform mercury analysis by method 245.1.

e. Page 3, paragraph 7; and Section 7.0, Page 7, Paragraph 1: These sections describe 8 samples were affected by the high detection limit situation that occurred at the laboratory. The high detection limit affected samples from 8 sampling events, which included more than 8 samples. Considering the SS-1 sample is the compliance point, please adjust text to specify that 8 consecutive samples of SS-1 had detection limits above the human health standard.

Atlantic Richfield Response: Text was added to Section 7.0 for clarification.

2) Section 7.0 (Page 7, Paragraph 1): *Please include that mercury results that were generated using the appropriate EPA method 245.1 LL had no exceedances.*

Atlantic Richfield Response: Text has been added as described above in Comment 1.

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3) Appendix A.1, Discharge Monitoring Reports: *The Chronic Target for cadmium is listed as 0.00073 mg/L for a hardness of 382 mg/L and 0.00076 mg/L for a maximum hardness of 400 mg/L, which are based on outdated hardness correction equations. As noted in Comment 3 from the Q3 2020 BTL O&M comment letter, the 2020 BPSOU Record of Decision Amendment, Table 1, presents an updated chronic cadmium hardness correction equation (see below). Based on this new equation, the minimum and maximum standards from hardness recorded in Q4 would be 0.0023 and 0.0024 mg/L respectively. Please update the hardness correction equation and apply it to future reporting.*

Atlantic Richfield Response: Table 1 referenced in the comment above is applicable to in-stream surface water standards. Discharge standards for the Butte Treatment Lagoons (BTL) effluent are based off the end-of-pipe standards provided in Table 8-1 as stated in Appendix D of the 2020 Consent Decree: "*For numeric ARAR standards applied to the Butte Treatment Lagoon (BTL) outflow, compliance with end-of-pipe performance standards described in Section 8.0, Table 8.1 shall be required at the end of the shakedown period for the BTL. The shakedown period is currently in place and shall continue until approval of the KRECCR…During the shakedown periods, the Settling Defendants shall use best efforts to achieve the end-of-pipe Performance Standards described in Section 8.0, Table 8-1 for the BTL*."

No changes were made to the Discharge Monitoring Form.

End of Comments.

If you have any questions or comments, please call me at (406) 723-1820.

Sincerely,

Dave Griffis,
Liability Manager
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SILVER BOW CREEK/BUTTE AREA NPL SITE
BUTTE PRIORITY SOILS OPERABLE UNIT

Revised Draft Final

Quarterly Operations and Maintenance Report
Butte Treatment Lagoon System –
Fourth Quarter 2020

Atlantic Richfield Company

June 2021

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Ref: 8MO

April 6, 2021

Mr. Dave Griffis
Treatment Operations Project Manager
Atlantic Richfield Company
317 Anaconda Road
Butte, MT 59701
On behalf of Respondents

Re: Comment letter for: Butte Priority Soils Operable Unit (BPSOU) Draft Final Quarterly Operations and Maintenance Report Butte Treatment Lagoons System – Fourth Quarter 2020 (dated February 23, 2021)

Dear Dave:

The U. S. Environmental Protection Agency (EPA), in consultation with the Montana Department of Environmental Quality (DEQ), has reviewed and is providing comments for the subject report. Please incorporate these comments and submit the revised version of the report for review and approval.

Specific Comments

1) **Section 4.0 and Section 7**:
   a. Page 2, Paragraph 1: Please include that mercury results that were generated using the appropriate EPA method 245.1 LL had no exceedances.
   b. Page 3, Paragraph 2: While the drop-in liming rate on October 28th from 120 to 115 mg/L is noted in the text, there is also a decrease shown in the actual lime rate on November 12 to 111 mg/L. This corresponds with a decrease in amount of lime used between November 11 and 12, 661 kg, which is lower than the amount used in the day before and the day after, 711 and 712 kg respectively. The event logs note a screw conveyor motor replacement occurred on November 11 and that a lime delivery was received on November 12, but it is unclear if these activities affected the liming rate reduction that was recorded. Please include this observation within the text as a potential cause of the metals exceedances observed in the November 12 effluent samples and provide an explanation as to what may have caused the drop-in liming rate.
   c. Page 3, Paragraph 3: Please include silver, mercury, and lead in the list of metals that had elevated concentrations in the influent on November 2, 2020.
   d. Page 3-4, Paragraph 5-9: A corrective action plan is needed to address the laboratories loss of ability to use the appropriate EPA method 245.1 LL that resulted in eight samples with detection limits above the human health standard. This could include, but not be limited to, having a standby secondary laboratory that the samples could be shipped to and have samples

run with the appropriate method if a similar setback at the primary laboratory occurs in the future.

e. Page 3, paragraph 7; and Section 7.0, Page 7, Paragraph 1: These sections describe 8 samples were affected by the high detection limit situation that occurred at the laboratory. The high detection limit affected samples from 8 sampling events, which included more than 8 samples. Considering the SS-1 sample is the compliance point, please adjust text to specify that 8 consecutive samples of SS-1 had detection limits above the human health standard.

2) **Section 7.0 (Page 7, Paragraph 1):** Please include that mercury results that were generated using the appropriate EPA method 245.1 LL had no exceedances.

3) **Appendix A.1, Discharge Monitoring Reports**: The Chronic Target for cadmium is listed as 0.00073 mg/L for a hardness of 382 mg/L and 0.00076 mg/L for a maximum hardness of 400 mg/L, which are based on outdated hardness correction equations. As noted in Comment 3 from the Q3 2020 BTL O&M comment letter, the 2020 BPSOU Record of Decision Amendment, Table 1, presents an updated chronic cadmium hardness correction equation (see below). Based on this new equation, the minimum and maximum standards from hardness recorded in Q4 would be 0.0023 and 0.0024 mg/L respectively. Please update the hardness correction equation and apply it to future reporting.

COC	Montana DEQ-7 formula (total)	Federal CCC (dissolved)	Dissolved CF
Cadmium	exp{0.7977*[ln(hardness)]-3.909}	exp{0.7977*[ln(hardness)]-3.909}*CF	1.101672-ln(hardness)*
Copper	exp{0.8545*[ln(hardness)]-1.702}	exp{0.8545*[ln(hardness)]-1.702}*CF	0.96
Lead	exp{1.273*[ln(hardness)]-4.705}	exp{1.273*[ln(hardness)]-4.705}*CF	1.46203-[ln(hardness)*
Zinc	exp{0.8473*[ln(hardness)]+0.884}	exp{0.8473*[ln(hardness)]+0.884}*CF	0.986

- Montana DEQ-7 hardness-based standards for the total recoverable fraction have a minimum and maximum hard 25 to 400 mg/L
- The Federal CCC or CMC hardness-based standards do not have a minimum or maximum hardness, and the con specific dissolved correction factor should be applied.
- Conversion Factor introduced in 1998 publication of recommended water quality criteria (Federal Register v.63, 68354-68364).

If you have any questions or concerns, please call me at (406) 457-5019.

Sincerely,

Nikia Greene
Remedial Project Manager

cc: (email only)
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SILVER BOW CREEK/BUTTE AREA NPL SITE
BUTTE PRIORITY SOILS OPERABLE UNIT

Revised Draft Final

Quarterly Operations and Maintenance Report Butte Treatment Lagoon System – Fourth Quarter 2020

Prepared for:

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317 Anaconda Road
Butte, Montana 59701

Prepared by:

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June 2021

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DOCUMENT MODIFICATION SUMMARY

No.	Author	Version	Description	Date
0	Brad Hollamon	Draft	Issued for Internal Atlantic Richfield Company Review	2/10/21
0	Brad Hollamon	Draft Final	Issued for Agency Review	2/23/2021
1	Brad Hollamon	Revised Draft Final	Issued for Agency Review	6/03/2021

1.0 INTRODUCTION

This quarterly operations and maintenance (O&M) report summarizes water quality monitoring results and flow data collection at the Butte Treatment Lagoons (BTL) during the fourth quarter of 2020, the period from October 1 to December 31, 2020. Sample station locations monitored during this monitoring period are shown on Figure 1 and identified below by location name, station field identification and sample identification. Sample locations include:

Sample Station Name	Station Field Identification	Sample Identification
Effluent sample station	EFS-07	SS-1
Influent sample station	INF-04	SS-2
MSD-HCC station	MSD-HCC	SS-3

Various sample results and reports referenced in this text are included in Appendices A-C.

All work described in this document was performed as detailed in the BTL Groundwater Treatment System Routine Operation, Maintenance, and Monitoring (OM&M) Plan (Atlantic Richfield, 2016) (referred to as the *Routine OM&M Plan)*. Refer to the Routine OM&M Plan for additional details related to sampling and monitoring tasks. Samples collected were sent to Pace Analytical Laboratory (Pace) for analysis. The laboratory completed data verification and validation (Level II) according to the laboratory quality assurance procedures. All data included in this quarterly report are provided as preliminary until final data validation is complete. Preliminary analytical data results are in Appendix A.

Final validated data will be provided in the annual report submitted in March 2021. Data validation will be conducted by an independent data validator—not involved with sampling activities and who does not work for the analytical laboratory—to produce enforcement quality data for all effluent data represented in this report.

2.0 SYSTEM DESCRIPTION SUMMARY

Impacted water from the West Camp Pump Station (WCP-1), Missoula Gulch baseflow, Butte Priority Soil Operable Unit (BPSOU) subdrain (subdrain), Butte Reduction Works (BRW) groundwater capture, Hydraulic Control Channel (HCC) groundwater capture, and BTL system D-cells is conveyed to the BTL collection cell, Cell D4, and then pumped from Cell D4, via the Influent Pump Station (IPS) to the Chemical Addition System (CAS) building as influent flow, where pre-treatment water quality is monitored at SS-2. The influent flow is mixed with lime slurry to reach a target pH, which allows dissolved heavy metals to precipitate and separate from the collected groundwater as treated water flows through a series of lagoon cells in the remainder of the BTL system. The lime slurry is created by adding dry calcium hydroxide, delivered by an accurate measurement system measured by milligrams of lime (calcium hydroxide) per liter (mg/L) of influent water, to a portion of the influent water. The slurry is then added back to the remainder of the influent, and pH-adjusted influent flow is directed to three parallel lagoon cell systems. Each system consists of three, unlined, open water cells operating in parallel: A, B, and

C, where the A system is to the north and C to the south. The primary purpose of the first cell is to allow the chemical reaction to occur, introduce additional carbon dioxide to the system, and to capture sediment and chemical precipitates. A fourth series of smaller, non-treatment cells, the D cells, is to the south of lagoons A2 and A3. The D cells act as hydraulic barriers between the treatment cells and Silver Bow Creek. Refer to Figure 1 for arrangement and configuration of the lagoon cells. Treated effluent water is then discharged to Silver Bow Creek at the effluent station, SS-1.

3.0 MONITORING

Water quality samples are typically collected using automated ISCO samplers programmed to collect composite samples over a 24-hour period. As previously described, sample stations and monitoring locations are shown on Figure 1. These composite samples are collected automatically twice each week at SS-1 and once each week at SS-2. Field grab samples are collected at station SS-3 monthly. Samples are analyzed for total recoverable metals (aluminum, arsenic, cadmium, copper, iron, mercury, lead, silver, zinc, calcium, magnesium, uranium) and hardness.

In addition to total recoverable metals analysis, samples are also analyzed for alkalinity, total dissolved solids, total suspended solids, and nitrates/nitrites once per month. Quality control samples, field blank (SS-4) and field duplicate (T), are collected monthly. Field parameters are collected daily at many points within the system and real-time data are collected by an automated monitoring system.

Treated effluent meeting the water quality standards described in Table 1 (Montana DEQ-7, Montana Numeric Water Quality Standards [DEQ, 2006]) of the Routine OM&M Plan is discharged to Silver Bow Creek at EFS-07. All reported total recoverable aluminum values are below the dissolved standard. In the event the total recoverable value exceeds the dissolved standard for aluminum, additional analysis will be performed on the dissolved sample to provide the dissolved fraction present in the sample. The dissolved aluminum results will then be reported and compared to the dissolved standard as initially discussed with the Agencies technical team in April 2019; further clarification is provided in the response to Agency comments to the 2019 Annual OM&M report (Atlantic Richfield, 2020).

The DEQ-7 aquatic life standards for cadmium, copper, lead, silver, and zinc are dependent on effluent hardness with an upper limit of 400 mg/L calcium carbonate ($CaCO_3$). Hardness of BTL effluent is most commonly greater than 400 mg/L calcium carbonate resulting in a consistent maximum standard from sample to sample.

4.0 SYSTEM PERFORMANCE SUMMARY

No exceedances of DEQ-7 standards were observed for aluminum, arsenic, iron, lead, silver, or zinc during this reporting period. Analytical results indicated 1 excursion for copper and cadmium occurred on November 12, 2020: sample ID LAO-SS-1-111220. The copper result was 0.034 mg/L, with a hardness corrected copper standard of 0.0305 mg/L. The cadmium result was 0.0015 mg/L, with a hardness corrected cadmium standard of 0.00076 mg/L. The hardness value

of 499 mg/L for the November 12, 2020, sample was also elevated compared to previous and post samples collected at the effluent. A brief look back at historical results indicated that effluent hardness values would normally be expected to be in a range between 390 mg/L and 420 mg/L during the fall operating period.

There were no operational changes or issues noted prior to the November 12, 2020, sampling date and the samples collected prior to and immediately following the November 12 sample event were within normal ranges for all analytes. The only observation of significance was that the lagoons were noted to have frozen over on November 9, 2020, and the lime rate had been lowered from 120 mg/L to 115 mg/L on October 28, 2020, as part of routine winter operations. Pace completed a re-analysis of the original digested sample and also completed analysis directly from the original sample container, which confirmed the original results.

The operations team did note that the influent sample collected on November 2, 2020, had elevated concentrations for arsenic, copper, iron, lead, mercury, and silver possibly due to the discharged water from the BRW pumping test that was completed on October 30, 2020.

The operations team performed a complete decontamination of the sampling apparatus of all components that could be cleaned and retained in service. Other portions suspected of having possible accumulation of solids (sample tubing, sample manifold from effluent line, etc.) were replaced and flushed to minimize the potential to capture solids in future effluent samples.

On December 4, 2020, the Pace project manager notified the BTL lead operator that low level mercury analysis using EPA method 245.1 LL would be unavailable for a period of up to three weeks. Delaying analysis for this period would result in the samples being out of the allotted hold period, and results would be qualified and/or rejected. Standard mercury analysis using EPA method 245.1 was an available option. The method detection limit for the standard EPA method 245.1 is 0.000066 mg/L, which is slightly above the DEQ-7 human health standard of 0.00005 mg/L.

The BTL lead operator, in consultation with the Atlantic Richfield Water Treatment Project Manager, instructed Pace to proceed with mercury analysis using the standard mercury EPA method 245.1 to ensure analysis would be performed within the allotted sample hold period. Email notification was provided to the EPA project manager on December 15, 2020, informing of the status of the analysis recommendation going forward.

Eight samples from the compliance point EFS-07 (SS-1) were analyzed for mercury using the standard EPA method 245.1 for mercury. These eight samples were reported above the human health standard of 0.00005 mg/L. These sample results were reported as less than 0.000066 mg/L with the following flag identifiers: U, MD. Laboratory identifier flag definitions are provided below.

- U: Indicates the compound was analyzed for, but not detected.
- MD: The analyte was not detected at or above the Method Detection Limit (MDL).

As indicated by the laboratory flag definitions provided above, mercury was not detected at or above the MDL (0.000066 mg/L) but results below the MDL cannot be accurately estimated. Exceedance of the human health standard (0.00005 mg/L) for these samples is uncertain due to the MDL (using the standard EPA method for mercury analysis) exceeding the human health standards. There were no exceedances noted for the remaining mercury analysis performed using EPA method 245.1 LL during the fourth quarter.

These sample results for mercury are reported as above the human health standard of 0.00005 mg/L in the Discharge Monitoring Report (DMR) because the standard mercury EPA method 245.1 MDL is above the human health standard of 0.00005 mg/L. For reference, previous results for mercury analysis using the low level method ranged from less than 0.0000039 mg/L to 0.000014 mg/L) during the first 3 quarters of 2020.

Water quality graphics for the major constituents of concern (COCs) (aluminum, arsenic, cadmium, copper, iron, lead, mercury, silver, and zinc) are provided in Appendix A.2.

Exceedance information and COC statistics are shown in the DMR Form provided in Appendix A.1. The maximum target for effluent pH, 9.50 standard units (SU), was not exceeded during this reporting period.

Complete BTL information for this reporting period is included with this report in separate electronic files, including an O&M events log and Field Data Summary files. The electronic files also include graphical representations of the preliminary data. Analytical laboratory reports are also included with this report as separate electronic files for reference (as appropriate).

5.0 OPERATIONS SUMMARY

The BTL has been running under routine operations as described in the OM&M Plan. Further details of treatment operations and site events for this reporting period are described in the following sections.

5.1 Influent Conditions

Influent flow measured at SS-2 is summarized below. Appendix B contains a graphical representation of the influent flow data.

Influent Flow		
Total Flow	150.2	million gallons
Average Flow Rate	1,147	gallons per minute

5.2 BPSOU Subdrain Pump Station Conditions

Flow pumped from the Pump Station and Wet Vault water levels are summarized below. Appendix B contains a graphical representation of the flow data.

Pump System Flow

Total Flow	58.0	million gallons
Average Flow Rate	438	gallons per minute

Wet Vault Levels

Minimum	5,435.83	feet above mean sea level-National Geodetic Vertical Datum 29 (amsl-NGVD29)
Maximum	5,435.84	feet amsl-NGVD29
Average	5,435.83	feet amsl-NGVD29

5.3 West Camp Pump Station Conditions

The WCP-1 flow and water levels are summarized below. Appendix B contains graphical representation of the recorded data.

West Camp Pump System Flow

Total Flow	26.7	million gallons
Average Flow Rate	202	gallons per minute

West Camp Water Levels

Minimum	5,421.34	feet amsl-NGVD29
Maximum	5,421.71	feet amsl-NGVD29
Average	5,421.54	feet amsl-NGVD29

5.4 Missoula Gulch Baseflow and Hydraulic Control Channel Flow

Missoula Gulch baseflow and groundwater collected by the HCC surrounding Lower Area One (LAO) make up the remaining influent flow. The base flow (discharging groundwater) from the upper portion of the Missoula Gulch drainage typically ranges from 50 to 100 gallons per minute and eventually discharges to the HCC. The HCC flow is comprised of influent sources, previously described, recaptured flow from the lagoon system, and captured untreated groundwater along the boundary of LAO. No flow measurement devices are in place to quantify the flow of groundwater from these sources.

5.5 Lime Addition

Daily lime usage, calculated on total lime dispensed via the gravimetric system, and dosage set point are listed below. Lime addition ceased for brief periods to accommodate general maintenance, and these periods were recorded in system notes.

Lime Set Point

Minimum	115	mg/L
Maximum	125	mg/L
Most Common	115	mg/L

Daily Lime Dosage (calculated)		
Minimum	106	mg/L
Maximum	128	mg/L
Average	116	mg/L
Total Lime Usage	74	Tons

Post-treatment pH (minimum, maximum, and average) measured at station INDC, is listed below. Appendix B includes daily lime addition and influent flow data and resulting pH values through the treatment process.

Post-treatment pH at INDC		
Minimum	9.91	SU
Maximum	10.45	SU
Average	10.08	SU

5.6 Effluent Conditions

Effluent flow measured near SS-1 and the quarterly *effluent deficit* to influent flow are listed below. Appendix B provides graphical and tabulated data of influent and effluent flows.

Effluent Flow		
Total Flow	127.3	million gallons
Average Flow Rate	972	gallons per minute

Influent – Effluent Deficit		
System Loss/Recirculation	22.9	million gallons
Average system loss flow rate	174	gallons per minute

Note: the BTL system was designed and is operated as a hydraulically losing system (i.e., effluent is less than influent flow) to ensure a hydraulic gradient is maintained away from Silver Bow Creek and effective containment of treated water is maintained throughout the lagoon system. Effluent deficit data are listed to confirm the lagoon cells (particularly the D Cells and HCC) are maintaining a deficit. Atlantic Richfield is currently working to quantify the various mechanisms of effluent deficit to optimize operations. These results will be discussed in a future document relating to system optimization and is out of scope for this document.

5.7 Effluent pH

Effluent pH (minimum, maximum, and average) measured at station SS-1 is listed below. The maximum target for pH, 9.50 SU, was not exceeded during this reporting period.

pH @ SS-1	
Minimum	9.20 SU
Maximum	9.48 SU
Average	9.20 SU
Exceedances above pH greater than 9.5	0

Carbon dioxide is added to the combined effluent during winter months and freezing conditions per Standard Operating Procedure BTL-SOP-45-CO2 to limit an increase in pH at the effluent station (EFS-07) due to reduced gas exchange of lagoon cells under ice-forming conditions.

Carbon dioxide addition began at the effluent (EFS-07) on November 17, 2020. The carbon dioxide addition rate was set to 5 cubic feet an hour for the remainder of the fourth quarter.

5.8 Inspection and Maintenance

Site operators completed routine maintenance and quarterly overview inspection tasks as listed in the Routine OM&M Plan (Atlantic Richfield, 2016). Appendix C contains a summary of the operator O&M events log. During the fourth quarter of 2020, the following tasks were completed:

- Monthly downloading and semi-annual maintenance of the subdrain area-velocity (AV) flow meters located in the subdrain.
- Jetting of the subdrain was completed on October 6 and October 7, 2020. The force main pigging of the north and south lines was completed on October 8, 2020.
- JCI removed cattails and debris from the channel near the subdrain vault from October 19 through October 21, 2020. This work was completed to allow water to flow freely in the channel without obstruction.
- Additional power was installed near the D4 Cell to power the dredge.
- The fall dredging/sludge removal in lagoon cells A1, B1, and C1 began on September 11, 2020, and was completed on October 13, 2020.

6.0 TRAINING

Site operators continued to review standard operating procedures relevant to work assignments, and also received training on seasonal tasks. Appendix C contains a training log for the quarter.

7.0 CONCLUSION

No exceedances of DEQ-7 water quality standards for arsenic, iron, lead, silver, or zinc were observed in the BTL effluent samples, and the maximum effluent pH, 9.5 SU, was not exceeded. One excursion for copper and cadmium occurred on November 12, 2020: sample ID LAO-SS-1-111220. The copper result was 0.034 mg/L, with a hardness corrected copper standard of 0.0305 mg/L. The cadmium result was 0.0015 mg/L, with a hardness corrected cadmium standard of 0.00076 mg/L. Eight samples from the compliance point at EFS-07 (SS-1) for mercury were reported above the human health standard of 0.00005 mg/L; all eight of these sample results were reported as less than 0.000066 mg/L (using the standard EPA method for mercury analysis) and were reported with the following flag identifies: U, MD. There were no exceedances noted for the remaining mercury analysis performed using EPA method 245.1 LL during the fourth quarter.

The BTL system performed effectively through the reporting period and operators continued to optimize treatment. Appendix A.2 contains a summary of analytical results at the effluent discharge point SS-1.

8.0 REFERENCES

Atlantic Richfield Company, 2020. Draft Final Annual Operations and Maintenance (O&M) Report, Butte Treatment Lagoon (BTL) System – 2019. Prepared by Pioneer Technical Services, Inc. March 30, 2020.

Atlantic Richfield Company, 2016. Draft Final Butte Treatment Lagoons Groundwater Treatment System Routine Operations, Maintenance, and Monitoring (OM&M) Plan. May 27, 2016.

DEQ, 2006. Circular DEQ-7 Montana Numeric Water Quality Standards. Montana Department of Environmental Quality, February 2006.

Figures

Figure 1. BTL and BPSOU Subdrain Routine Sample and Monitoring Locations

Point Table			Point Table		
Description	Northing	Easting	Description	Northing	Easting
MH-MSD106	651209.02	1197905.47	HCC-01	651325.00	1193749.26
MH-MSD108	651265.29	1198781.03	HCC-01A	651326.53	1193021.75
MH-MSD110	651503.81	1199850.85	HCC-01B	651331.65	1192933.79
MH-MSD113	652414.06	1200906.31	HCC-02A	651364.64	1192780.84
MH-MSD116	653236.82	1201858.01	HCC-03	651895.05	1192245.96
MSD-HCC	651600.21	1194949.19	HCC-03A	651940.66	1192156.74
MSD-OUT	651324.20	1197083.50	HCC-04	652072.94	1191792.43
A1	651838.45	1192164.94	HCC-04A	652097.11	1191743.43
A2	651931.22	1191690.21	HCC-05	652280.66	1191254.87
A3	652055.47	1191180.80	HCC-05A	652303.23	1191210.43
B1	651484.14	1192551.84	HCC-06	652343.18	1191051.80
B2	651657.02	1192233.20	HCC-06A	652355.78	1191012.56
B3	651702.08	1192096.79	HCC-07	652188.07	1190724.00
C1	651464.96	1192558.36	INDC	651511.64	1192604.67
C3	651541.57	1192046.18	INF04	651457.40	1192637.70
			EFS-07	651925.98	1191093.47

LEGEND:

- BTL ANALYTICAL SAMPLE COLLECTION
- SUBDRAIN LOADING - FLOW WATER LEVEL, FIELD PARAMETERS. ANALYTICAL SAMPLES
- BTL FIELD DATA - LEVEL
- HCC STAFF GAUGE LOCATIONS
- BTL FIELD DATA- pH, TEMP, CONDUCTIVITY
- INDC

DISPLAYED AS:
COORD SYS/ZONE: MSP
DATUM: NAD 83
UNITS: FEET
SOURCE: PIONEER

SCALE IN FEET
0 100 200

FIGURE 1

BTL AND BPSOU SUBDRAIN ROUTINE SAMPLE AND MONITORING LOCATIONS

PIONEER TECHNICAL SERVICES, INC.
1101 SOUTH MONTANA
BUTTE, MONTANA 59701
(406) 782-5177

DATE: 2/2019

Appendix A
Results and Reports

Appendix A.1
Discharge Monitoring Reports

SUMMARY OF ANALYTICAL RESULTS FOR EFS-07. Fourth Quarter 2020				
COC	**LOW**	**AVG**	**HIGH**	**EXCURSIONS**
ARSENIC (mg/l)	0.0043	0.0056	0.0099	0 out of 27
CADMIUM (mg/l)	0.00015	0.00025	0.00150	1 out of 27
COPPER (mg/l)	0.0080	0.0108	0.0340	1 out of 27
IRON (mg/l)	0.015	0.025	0.072	0 out of 27
LEAD (mg/l)	0.00009	0.00020	0.00072	0 out of 27
MERCURY (mg/l)	0.0000045	0.000023	0.000066	8 out of 27
SILVER (mg/l)	0.000077	0.000077	0.000081	0 out of 27
ALUMINUM (mg/l)	0.0071	0.0097	0.0300	0 out of 27
ZINC (mg/l)	0.048	0.076	0.320	0 out of 27
pH (SU)	9.20	9.36	9.48	0 out of 92
HARDNESS (mg/l)	382	398	400	n/a

DISCHARGE MONITORING REPORT FORM

Name:	Atlantic Richfield Company
Address:	317 Anaconda Road
	Butte, MT 59701
Facility:	Butte Treatment Lagoons
Location:	Butte, Montana

Discharge Number
EFS-07
Comparison to ROD Standards

MONITORING PERIOD						
YEAR	MO	DAY		YEAR	MO	DAY
2020	**10**	**1**	to	**2020**	**12**	**31**

from

PARAMETER		QUANTITY OR LOADING AVERAGE	QUANTITY OR LOADING MAXIMUM	QUANTITY OR LOADING UNITS	QUALITY OR CONCENTRATION MINIMUM	QUALITY OR CONCENTRATION AVERAGE	QUALITY OR CONCENTRATION MAXIMUM	QUALITY OR CONCENTRATION UNITS	NO. EX	FREQUENCY OF ANALYSES	SAMPLE TYPE
ARSENIC (Total)	SAMPLE MEASUREMENT	NA	NA		**0.0043**	**0.0056**	**0.0099**		**0/27**	**2/7**	**COMP**
	DISCHARGE STANDARD	NA	NA	NA	0.010 Daily Min		0.010 Daily Max	mg/l		Twice/Week	ISCO
CADMIUM *	SAMPLE MEASUREMENT	NA	NA	8 NA	**0.00015**	**0.00025**	**0.00150**		**1/27**	**2/7**	**COMP**
	DISCHARGE * STANDARD	NA	NA	NA	0.00073 Daily Min		0.00076 Daily Max	mg/l		Twice/Week	ISCO
COPPER *	SAMPLE MEASUREMENT	NA	NA	NA	**0.0080**	**0.0108**	**0.0340**		**1/27**	**2/7**	**COMP**
	DISCHARGE STANDARD	NA	NA	NA	0.0293 Daily Min		0.0305 Daily Max	mg/l		Twice/Week	ISCO
IRON	SAMPLE MEASUREMENT	NA	NA	NA	**0.015**	**0.025**	**0.072**		**0/27**	**2/7**	**COMP**
	DISCHARGE STANDARD	NA	NA	NA	1.0 Daily Min		1.0 Daily Max	mg/l		Twice/Week	ISCO
LEAD *	SAMPLE MEASUREMENT	NA	NA	NA	**0.00009**	**0.00020**	**0.00072**		**0/27**	**2/7**	**COMP**
	DISCHARGE * STANDARD	NA	NA	NA	0.015 Daily Min	0.015 HH	0.015 Daily Max	mg/l		Twice/Week	ISCO
MERCURY	SAMPLE MEASUREMENT	NA	NA	NA	**0.0000045**	**0.000023**	**0.000066**		**8/27**	**2/7**	**COMP**
	DISCHARGE STANDARD	NA	NA	NA	Daily Min	0.00005 HH	Daily Max	mg/l		Twice/Week	ISCO
SILVER*	SAMPLE MEASUREMENT	NA	NA	NA	**0.000077**	**0.000077**	**0.000081**		**0/27**	**2/7**	**COMP**
	DISCHARGE STANDARD	NA	NA	NA	0.041 Daily Min		0.044 Daily Max	mg/l		Twice/week	ISCO

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachements here)

* Values are hardness corrected.

Reported total recoverable values for aluminum are compared to the chronic dissolved standard of 0.087 mg/L.

Mercury Reporting limit is 0.00005 mg/L, the detection limit is 0.0000045 mg/L.

DISCHARGE MONITORING REPORT FORM

Name: Atlantic Richfield Company								Discharge Number	
Address: 317 Anaconda Road								**EFS-07**	
Butte, MT 59701								Comparison to ROD Standards	
		MONITORING PERIOD							
Facility: Butte Treatment Lagoons		YEAR	MO	DAY		YEAR	MO	DAY	
Location: Butte, Montana	from	**2020**	**10**	**1**	to	**2020**	**12**	**31**	

PARAMETER		QUANTITY OR LOADING AVERAGE	QUANTITY OR LOADING MAXIMUM	QUANTITY OR LOADING UNITS	QUALITY OR CONCENTRATION MINIMUM	QUALITY OR CONCENTRATION AVERAGE	QUALITY OR CONCENTRATION MAXIMUM	QUALITY OR CONCENTRATION UNITS	NO. EX	FREQUENCY OF ANALYSES	SAMPLE TYPE
ALUMINUM	SAMPLE MEASUREMENT	NA	NA		**0.0071**	**0.0097**	**0.0300**		**0/27**	**2/7**	**COMP**
	DISCHARGE STANDARD	NA	NA	NA	0.087 Daily Min		0.087 Daily Max	mg/l		Twice/Week	ISCO
ZINC *	SAMPLE MEASUREMENT	NA	NA	NA	**0.048**	**0.076**	**0.320**		**0/27**	**2/7**	**COMP**
	DISCHARGE * STANDARD	NA	NA	NA	0.373 Daily Min		0.388 Daily Max	mg/l		Twice/Week	ISCO
pH	SAMPLE MEASUREMENT	NA	NA	SU	**9.20**	**9.36**	**9.48**		**0/92**	**7/7**	**INST**
	DISCHARGE STANDARD	NA	NA	SU	6.5 Daily Min		9.5 Daily Max	SU		Daily	Instan.
HARDNESS	SAMPLE MEASUREMENT	NA	NA	NA	**382**	**398**	**400**		**N/A**	**2/7**	**COMP**
	DISCHARGE STANDARD	NA	NA	NA	Daily Min		Daily Max	mg/l		Twice/Week	ISCO

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachements here)

* Values are hardness corrected.

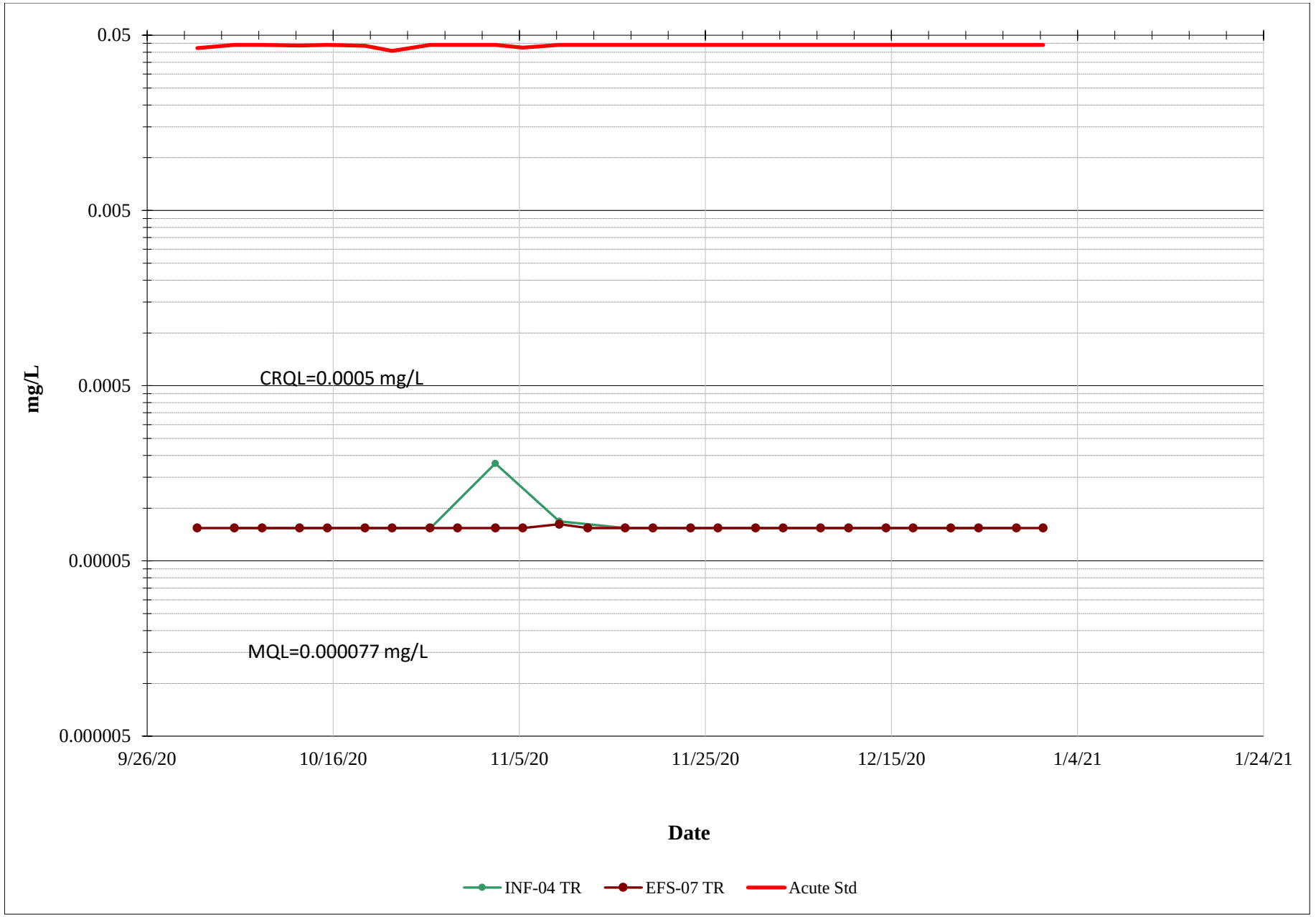
Reported total recoverable values for aluminum are compared to the chronic dissolved standard of 0.087 mg/L.

Mercury Reporting limit is 0.00005 mg/L, the detection limit is 0.0000045 mg/L.

Appendix A.2
Analytical Laboratory Results

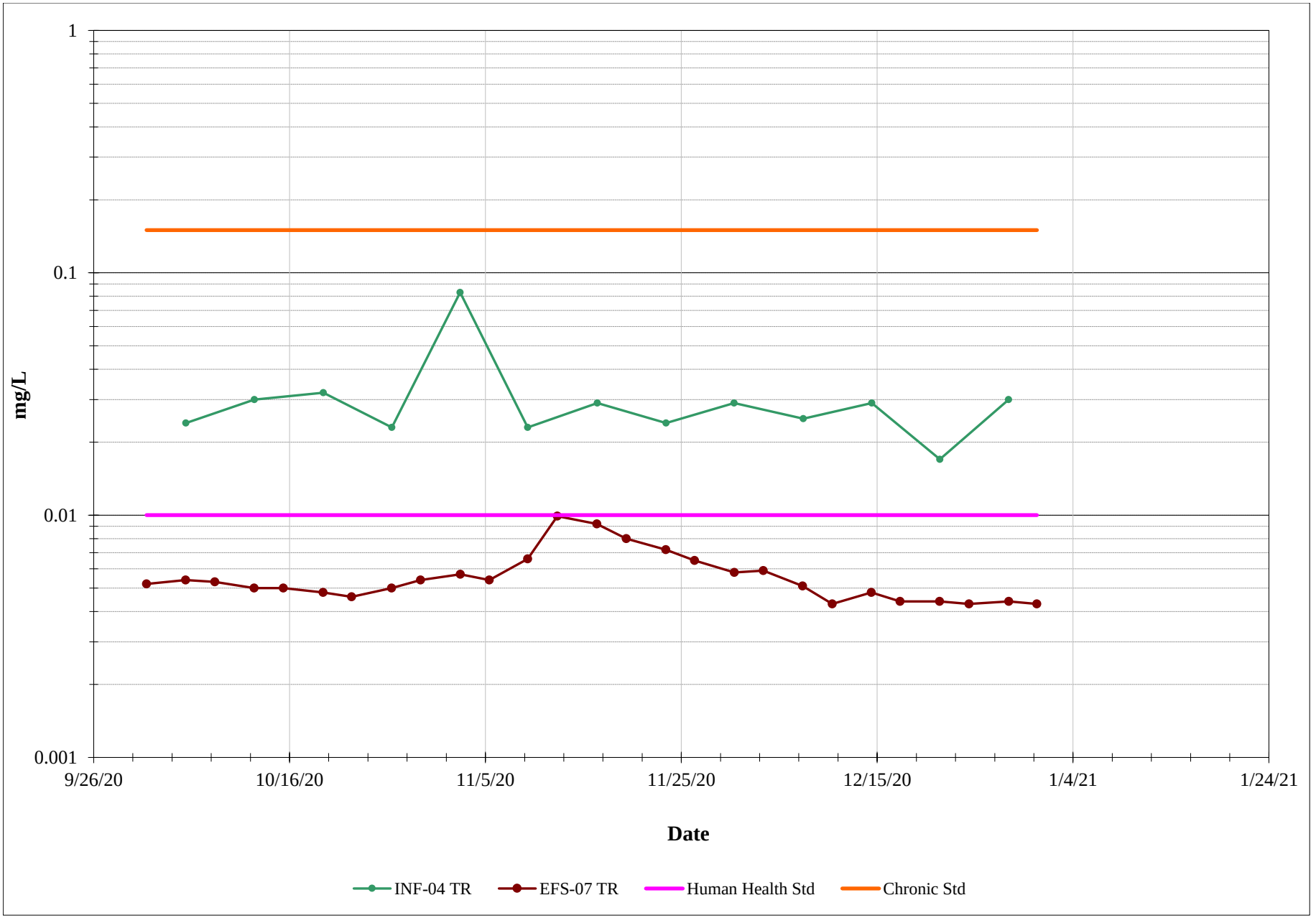
(Analytical results are provided electronically in the BTLChemicalDump Excel file included with this report)

Butte Treatment Lagoon System
Silver Concentration- Preliminary



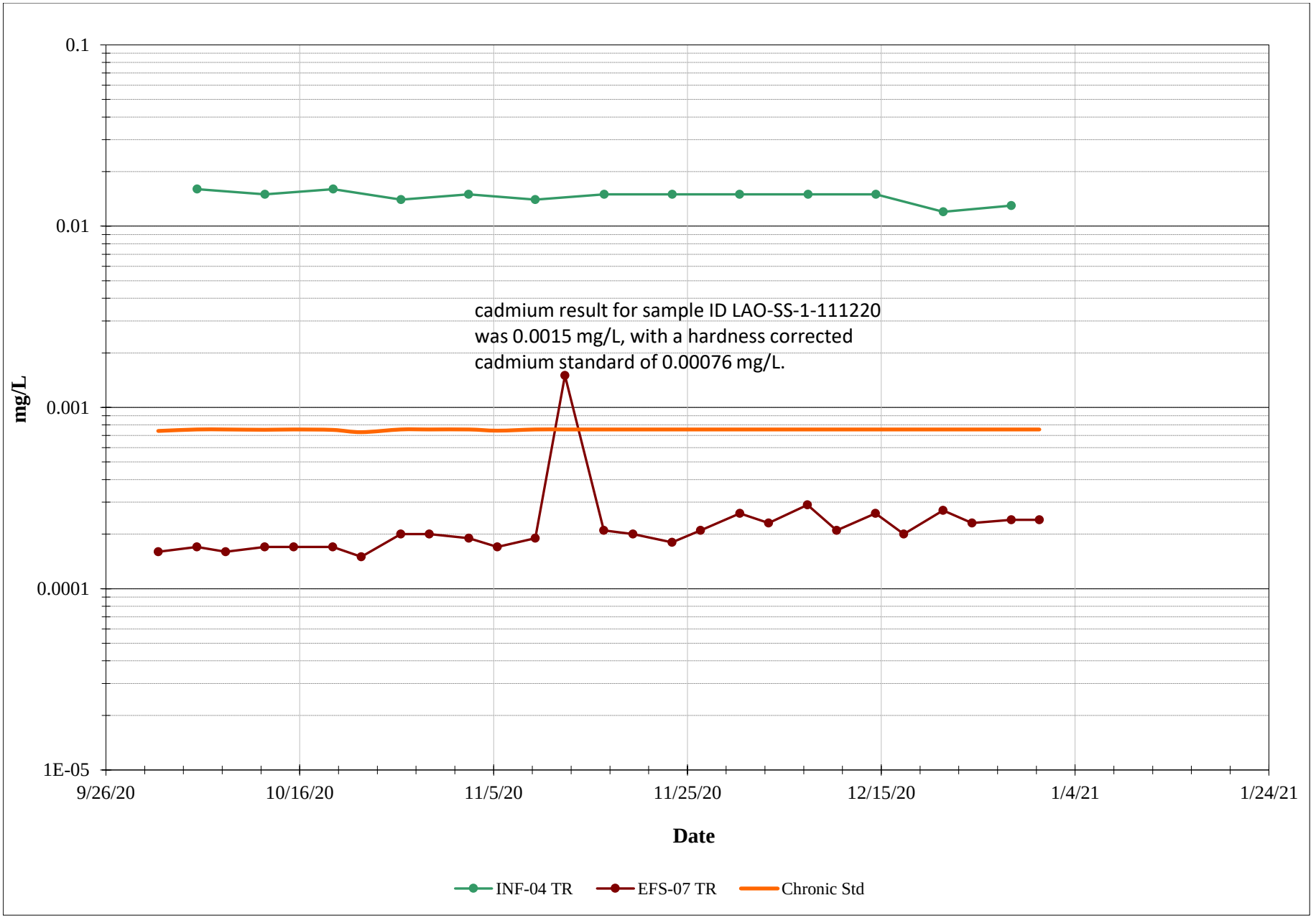
Silver maximum standard is DEQ-7 Acute Aquatic standard calculated based on effluent (EFS-07) hardness.

Butte Treatment Lagoon System
Arsenic Concentration- Preliminary



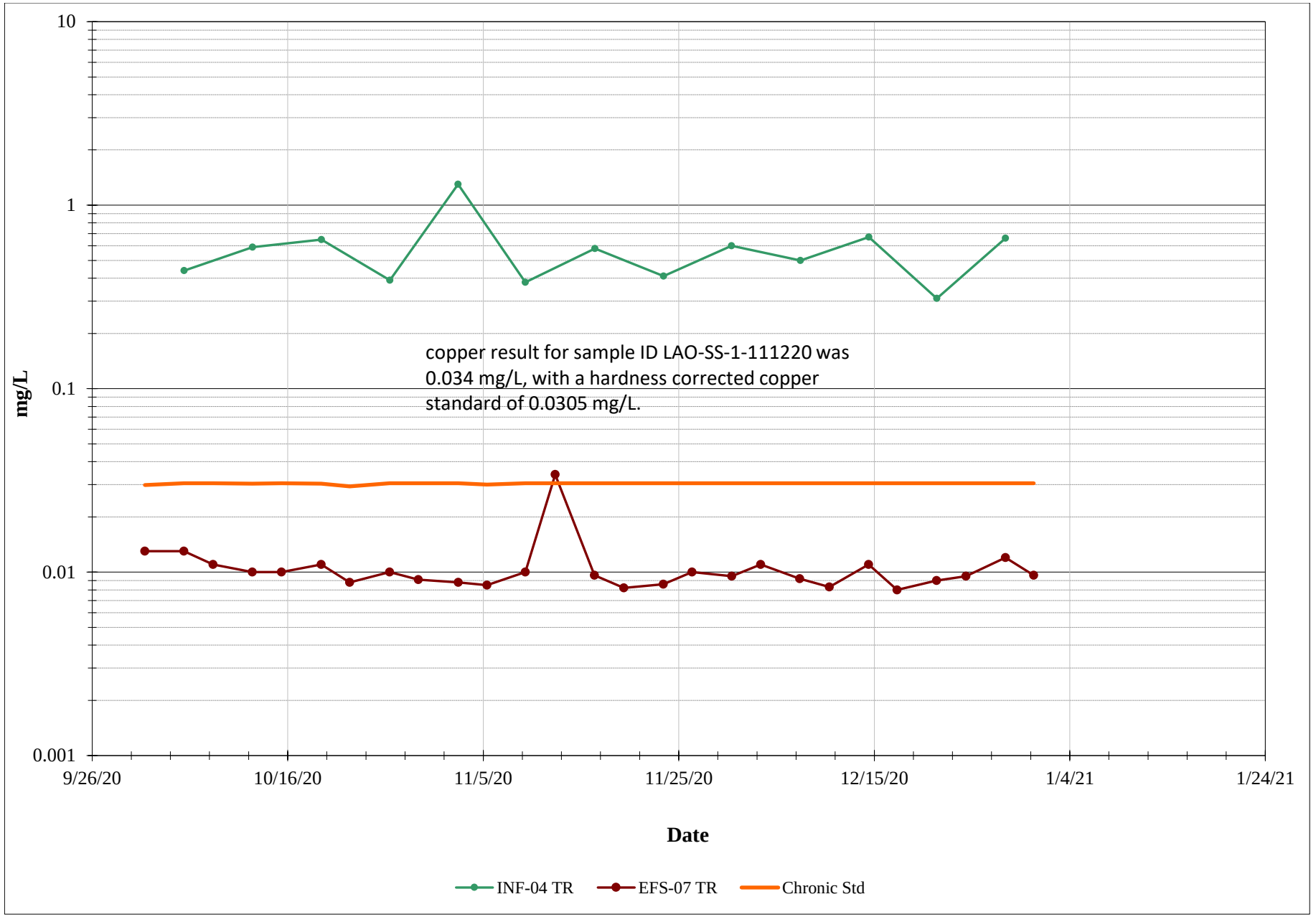
Arsenic maximum standard is DEQ-7 Human Heath standard.

Butte Treatment Lagoon System
Cadmium Concentration- Preliminary



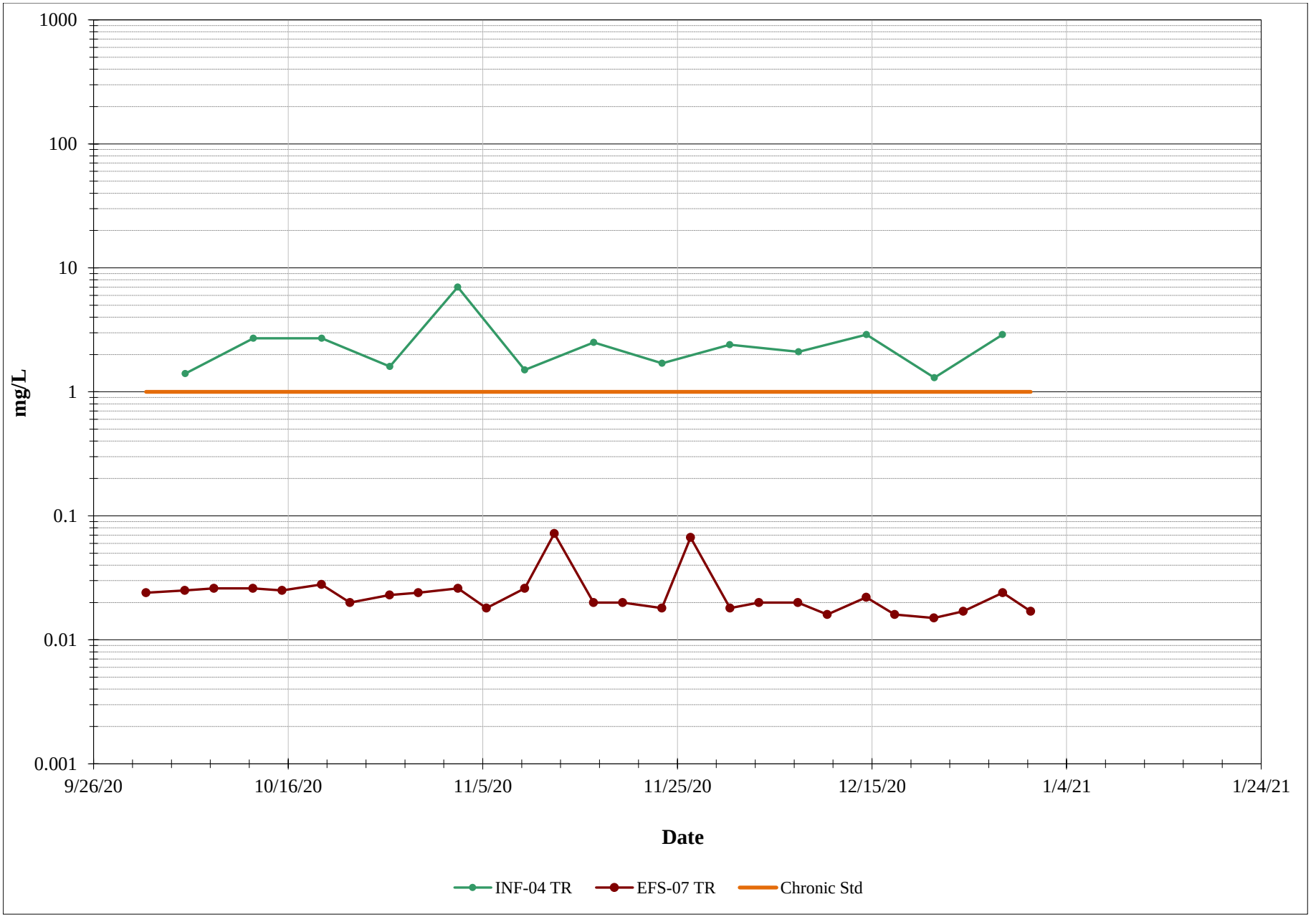
Cadmium maximum standard is DEQ-7 Chronic Aquatic standard calculated based on effluent (EFS-07) hardness.

Butte Treatment Lagoon System
Copper Concentration- Preliminary



Copper maximum standard is DEQ-7 Chronic Aquatic standard calculated based on effluent (EFS-07) hardness.

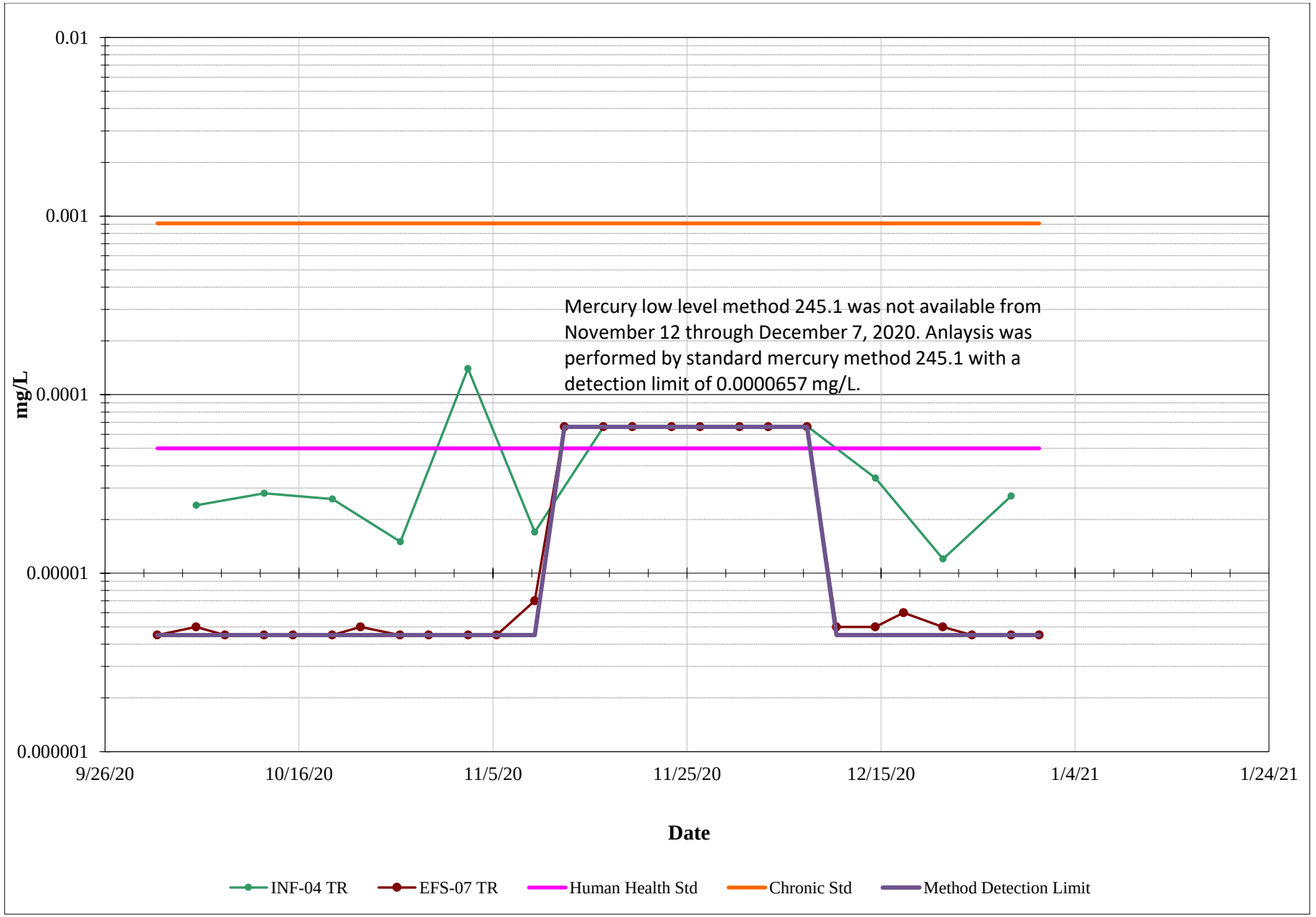
Butte Treatment Lagoon System
Iron Concentration- Preliminary



Iron maximum standard is DEQ-7 Chronic Aquatic standard, Non-priority Pollutant value, 1.0 mg/L.

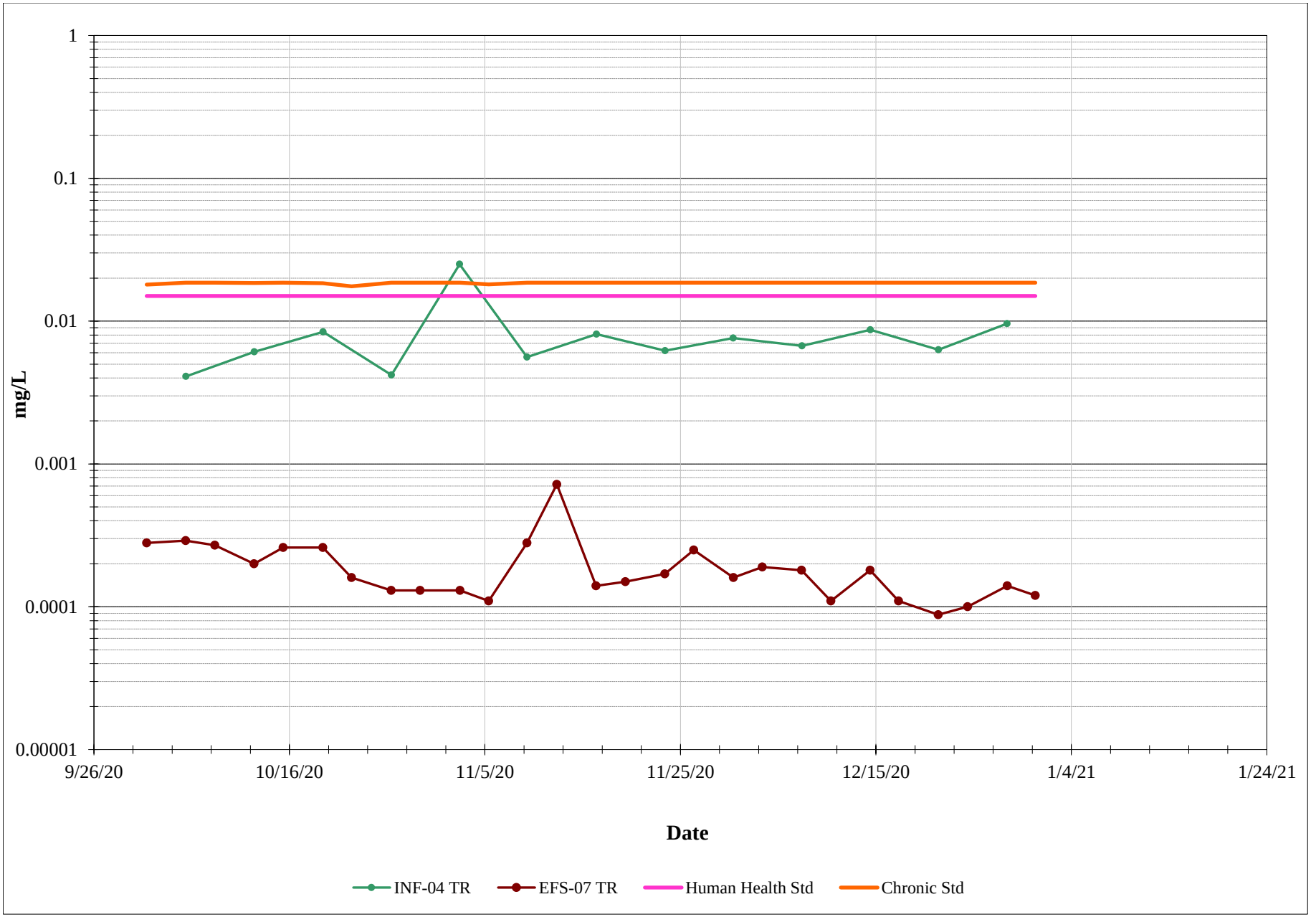
2020 4Q_BTLChemDump
2/17/2021

Butte Treatment Lagoon System
Mercury Concentration- Preliminary



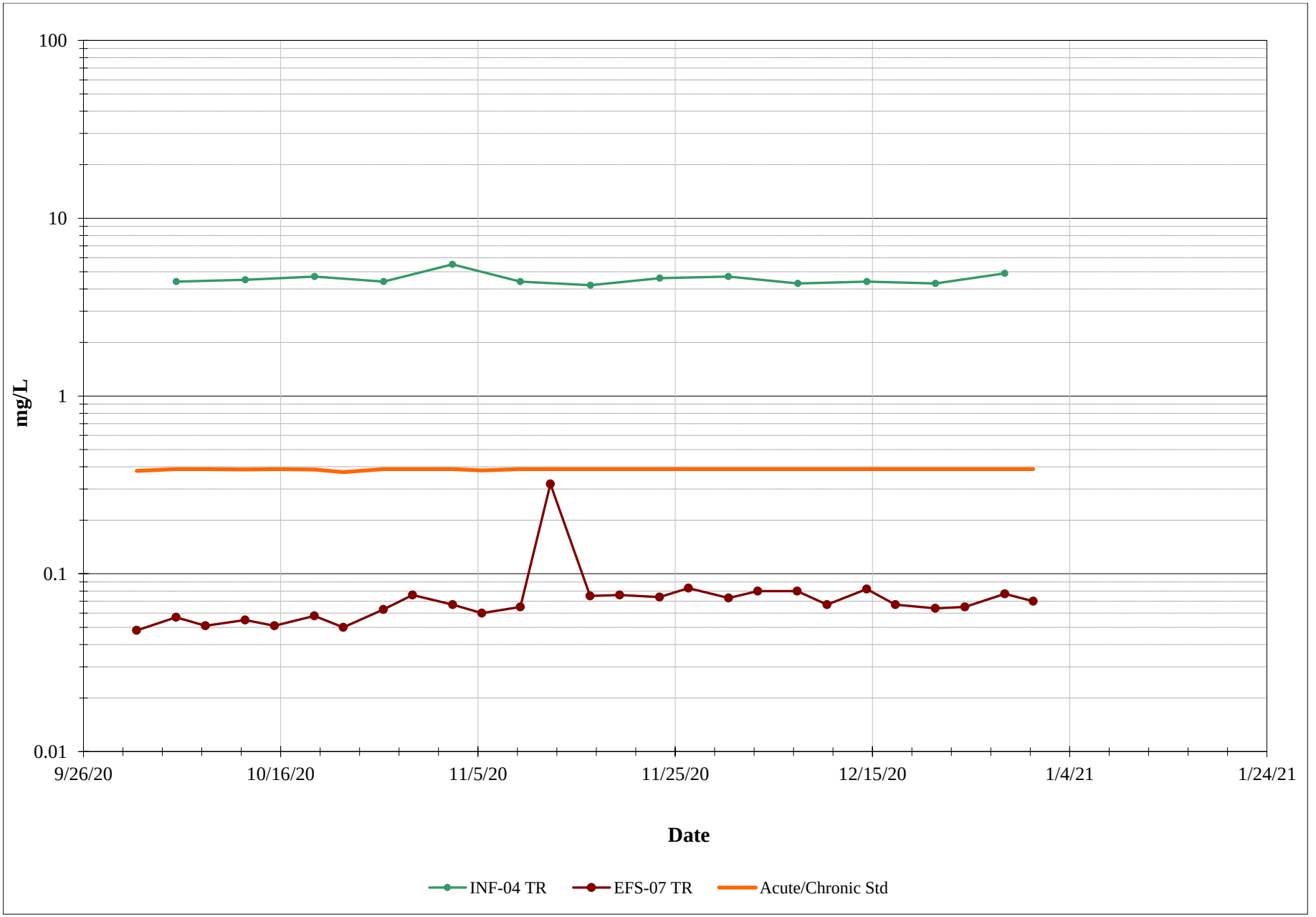
Mercury maximum standard is DEQ-7 Human Health standard.

Butte Treatment Lagoon System
Lead Concentration- Preliminary



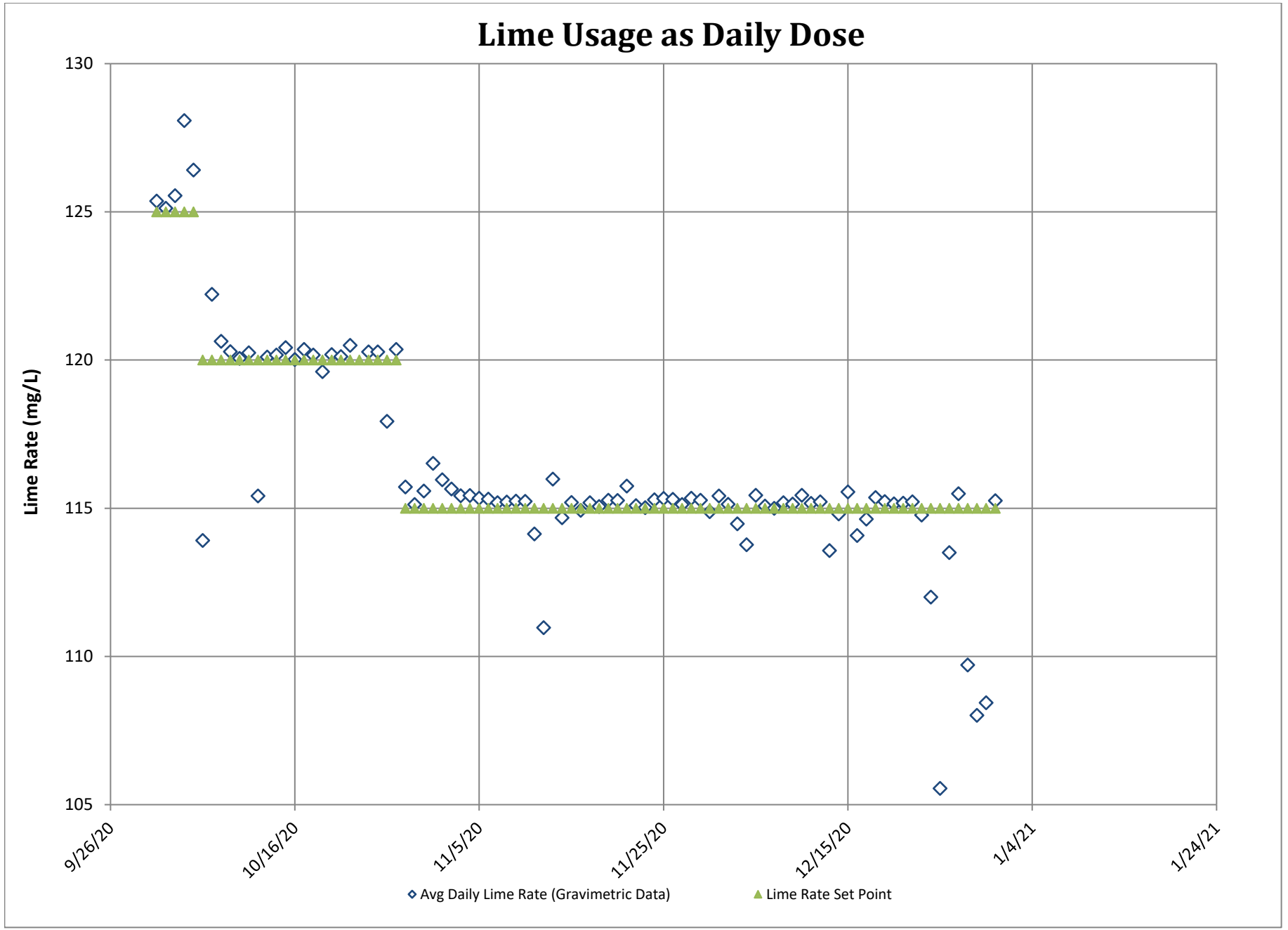
Lead maximum standard is DEQ-7 Human Health standard. Chronic Aquatic Life standard calculated based on effluent (EFS-07) hardness.

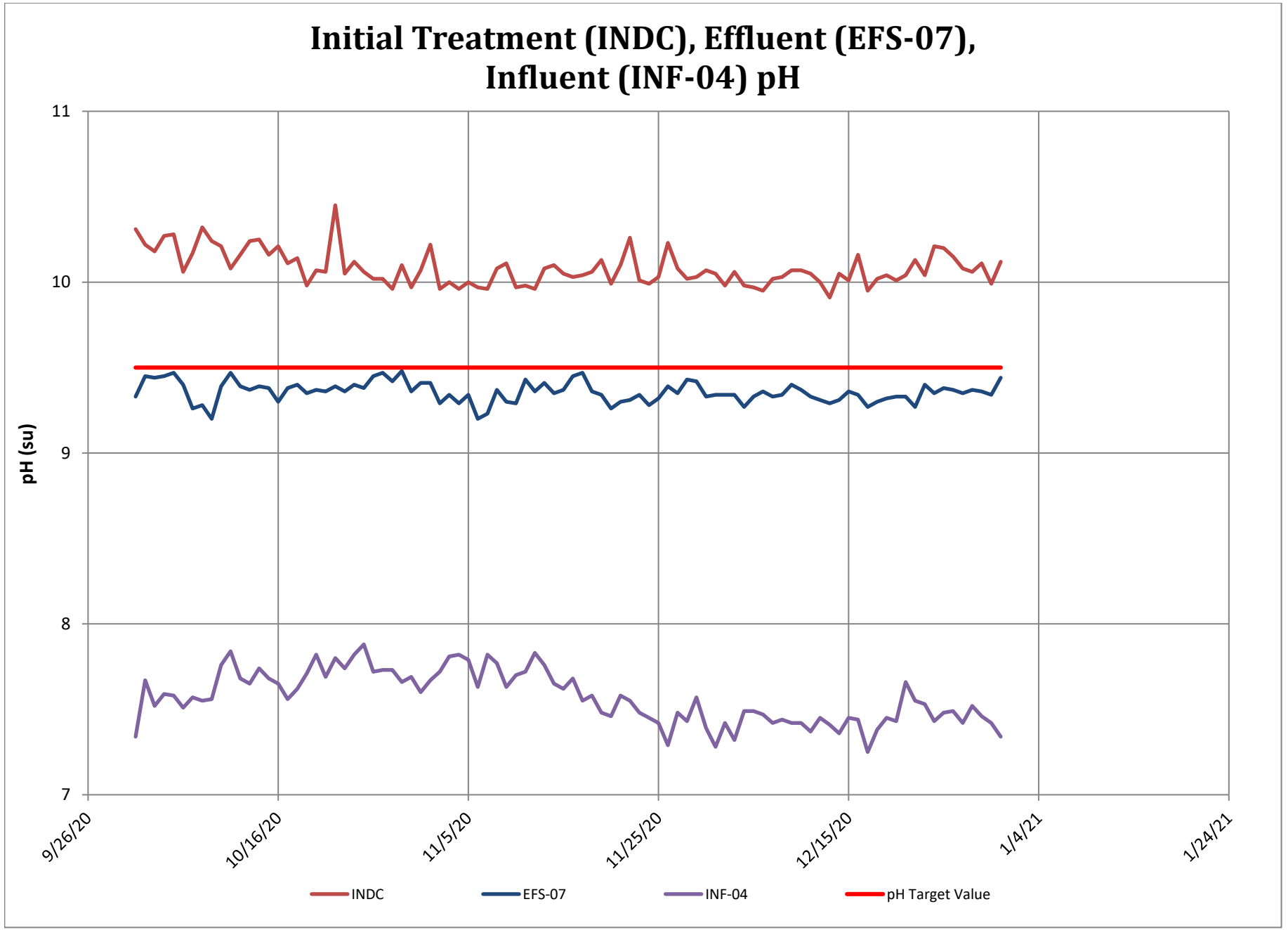
Butte Treatment Lagoon System
Zinc Concentration- Preliminary



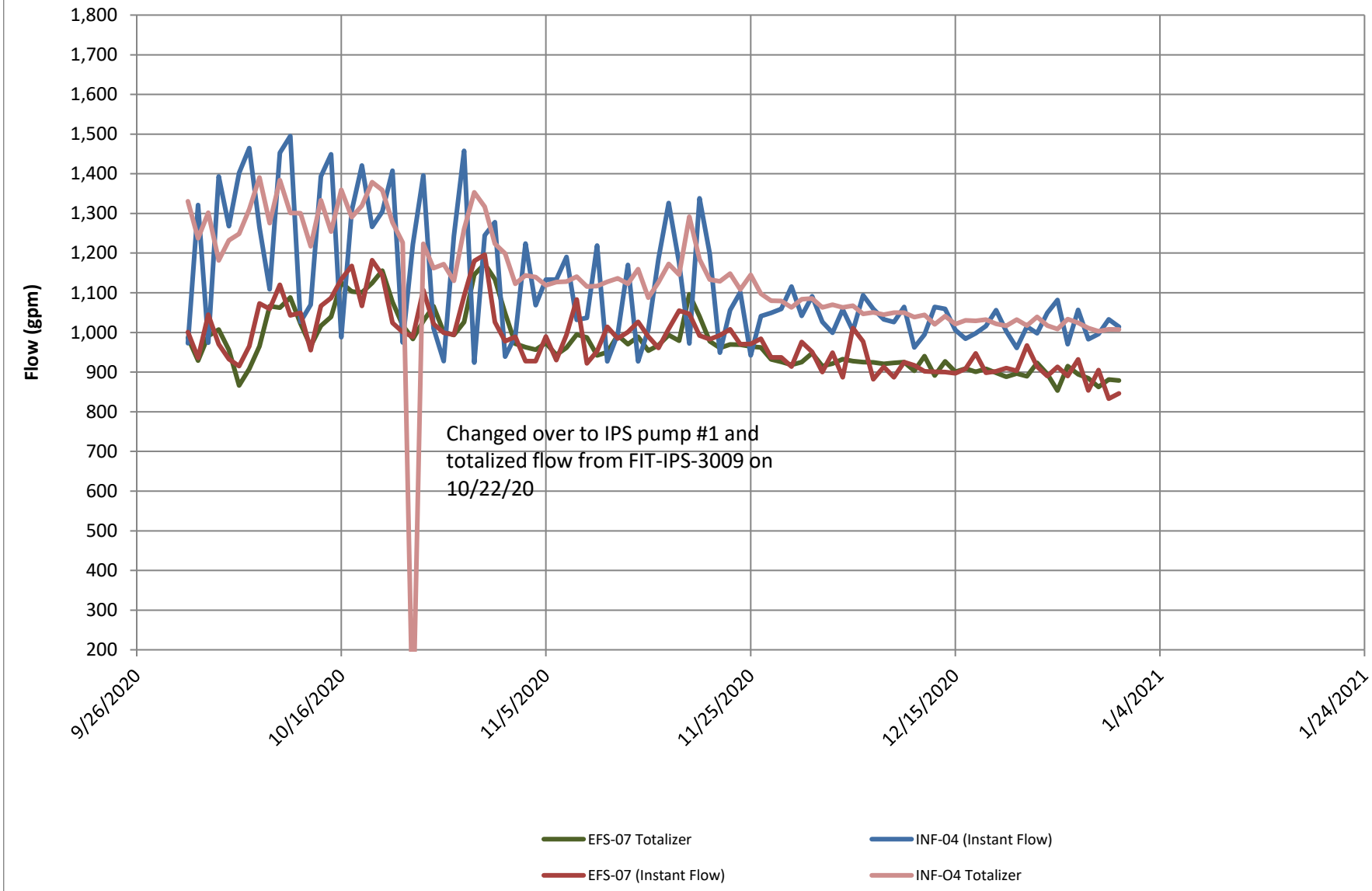
Zinc maximum standard is DEQ-7 Acute/Chronic standard calculated based on effluent (EFS-07) hardness.

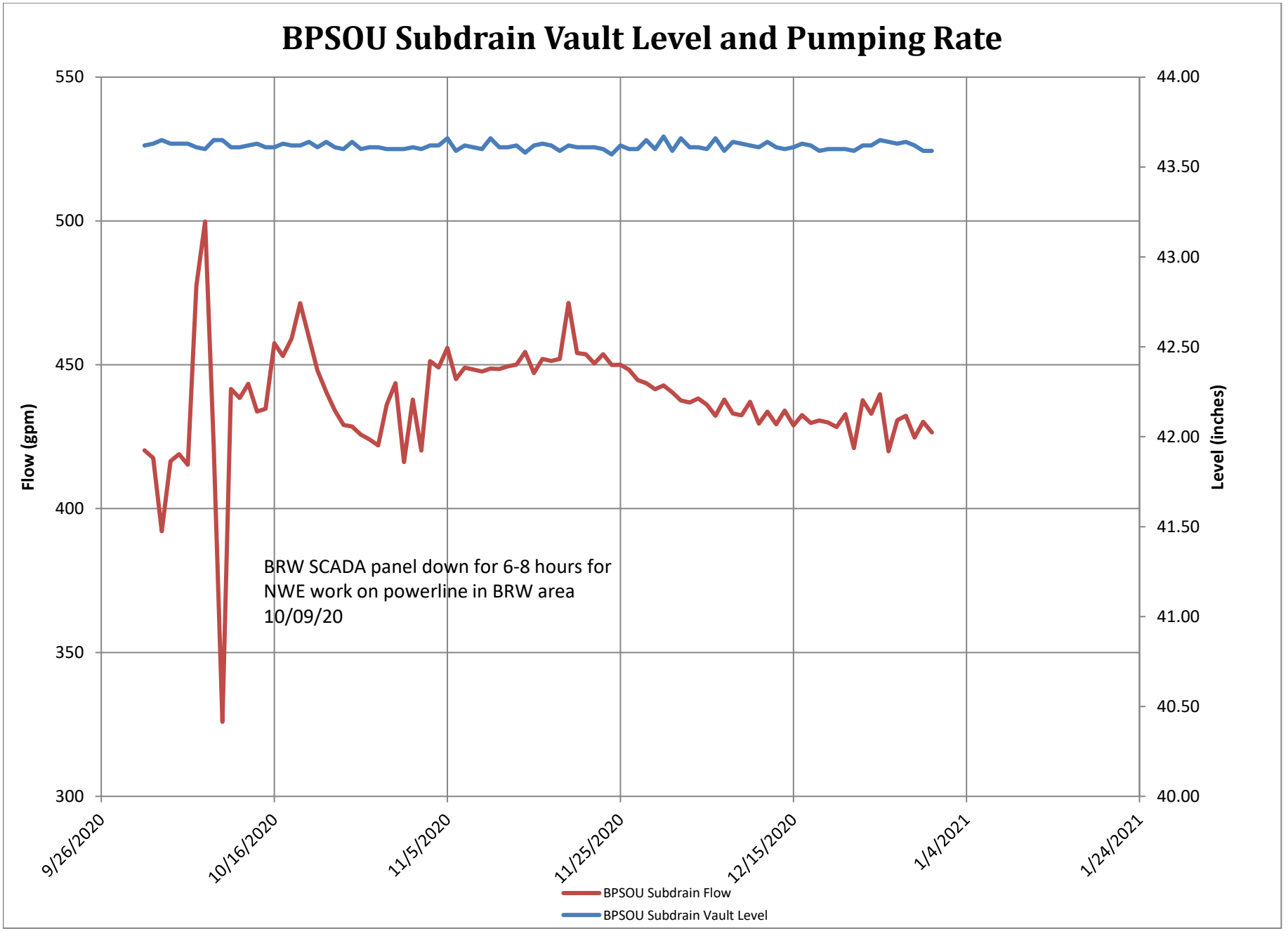
Appendix B
System Flows, Levels, and pH

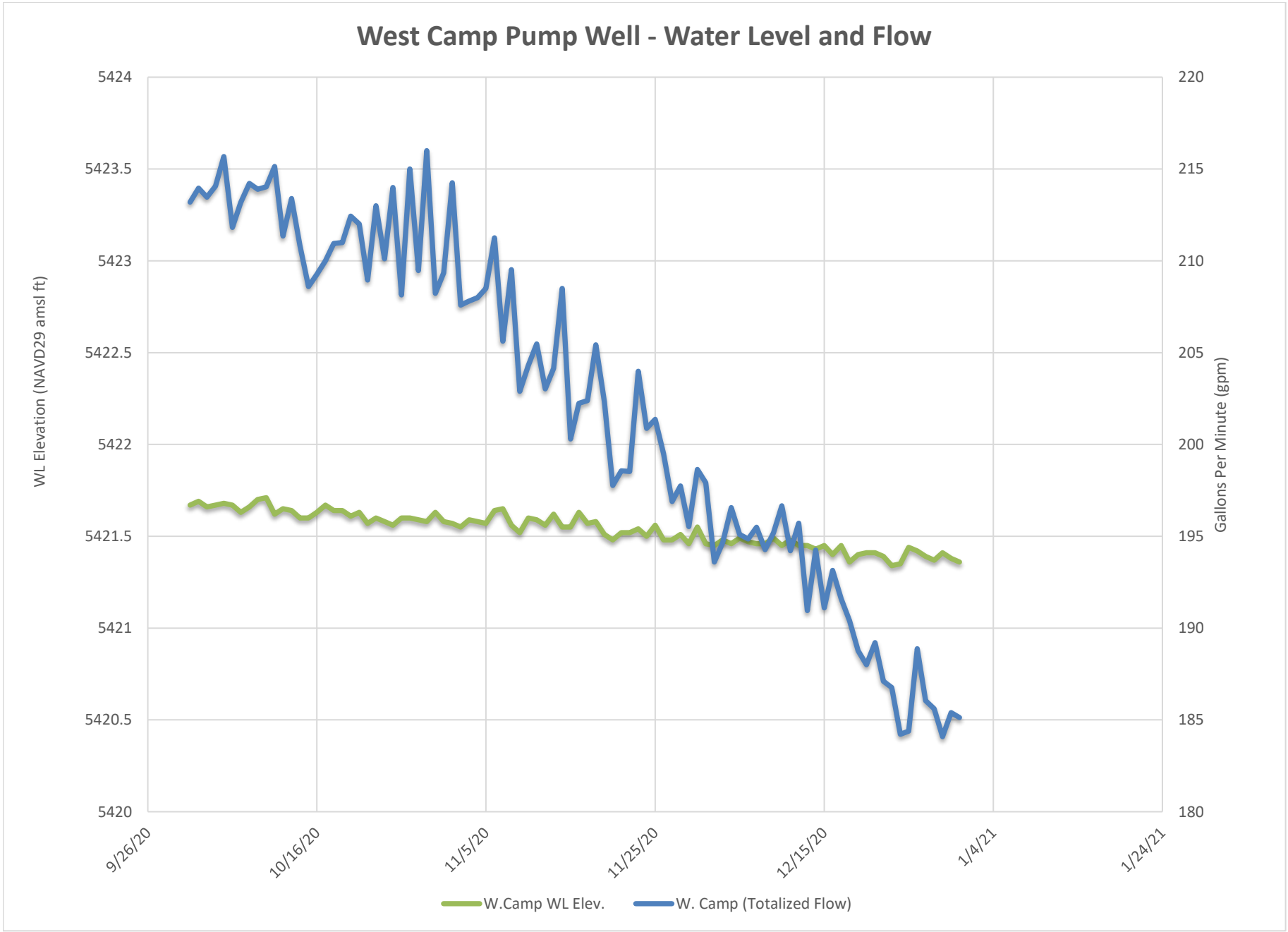

Lime Usage as Daily Dose
Lime Rate (mg/L)
130
125
120
115
110
105
9/26/20
10/16/20
11/5/20
11/25/20
12/15/20
1/4/21
1/24/21
Avg Daily Lime Rate (Gravimetric Data)
Lime Rate Set Point


Initial Treatment (INDC), Effluent (EFS-07), Influent (INF-04) pH
pH (su)
11
10
9
8
7
9/26/20
10/16/20
11/5/20
11/25/20
12/15/20
1/4/21
1/24/21
INDC
EFS-07
INF-04
pH Target Value

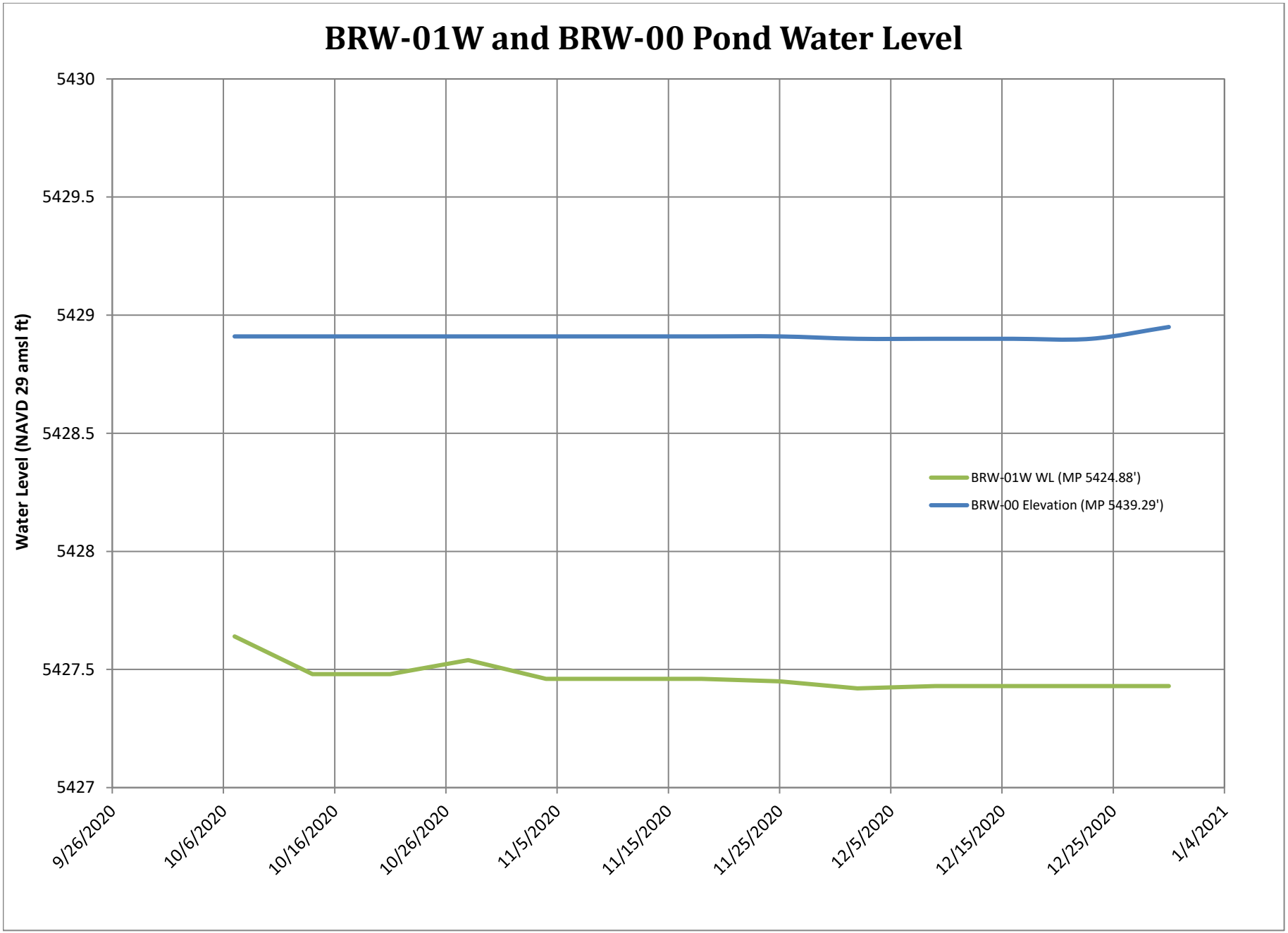
BTL Influent (INF-04) and Effluent (EFS-07) Flow Rate




BPSOU Subdrain Vault Level and Pumping Rate
550
500
450
400
350
300
Flow (gpm)
44.00
43.50
43.00
42.50
42.00
41.50
41.00
40.50
40.00
Level (inches)
9/26/2020
10/16/2020
11/5/2020
11/25/2020
12/15/2020
1/4/2021
1/24/2021
BRW SCADA panel down for 6-8 hours for NWE work on powerline in BRW area 10/09/20
BPSOU Subdrain Flow
BPSOU Subdrain Vault Level


West Camp Pump Well - Water Level and Flow
WL Elevation (NAVD29 amsl ft)
Gallons Per Minute (gpm)
5424
5423.5
5423
5422.5
5422
5421.5
5421
5420.5
5420
220
215
210
205
200
195
190
185
180
9/26/20
10/16/20
11/5/20
11/25/20
12/15/20
1/4/21
1/24/21
W.Camp WL Elev.
W. Camp (Totalized Flow)

BRW-01W and BRW-00 Pond Water Level



Date	Actual Lime Rate (mg/L)	Total Lime Used - From Feeder Display (kg)	Calculated Influent Flow Rate (gpm)	Calculated Effluent Flow Rate (gpm)	Date	Actual Lime Rate (mg/L)	Total Lime Used - From Feeder Display (kg)	Calculated Influent Flow Rate (gpm)	Calculated Effluent Flow Rate (gpm)	Date	Actual Lime Rate (mg/L)	Total Lime Used - From Feeder Display (kg)	Calculated Influent Flow Rate (gpm)	Calculated Effluent Flow Rate (gpm)
10/1/2020	125	2,060,456	1,331	987	11/1/2020	116	2,086,157	1,199	1,049	12/1/2020	115	2,107,433	1,086	948
10/2/2020	125	2,061,282	1,237	929	11/2/2020	116	2,086,882	1,123	972	12/2/2020	115	2,108,107	1,063	915
10/3/2020	126	2,062,207	1,302	991	11/3/2020	115	2,087,594	1,144	963	12/3/2020	114	2,108,791	1,070	921
10/4/2020	128	2,062,986	1,182	1,007	11/4/2020	115	2,088,388	1,139	957	12/4/2020	114	2,109,441	1,063	933
10/5/2020	126	2,063,891	1,232	956	11/5/2020	115	2,089,028	1,119	973	12/5/2020	115	2,110,220	1,068	927
10/6/2020	114	2,064,650	1,248	866	11/6/2020	115	2,089,746	1,127	943	12/6/2020	115	2,110,863	1,047	925
10/7/2020	122	2,065,505	1,311	908	11/7/2020	115	2,090,425	1,129	961	12/7/2020	115	2,111,446	1,050	925
10/8/2020	121	2,066,432	1,391	965	11/8/2020	115	2,091,176	1,141	995	12/8/2020	115	2,112,068	1,045	921
10/9/2020	120	2,067,390	1,275	1,066	11/9/2020	115	2,091,828	1,115	987	12/9/2020	115	2,112,704	1,050	923
10/10/2020	120	2,068,173	1,384	1,062	11/10/2020	115	2,092,571	1,117	942	12/10/2020	115	2,113,408	1,050	925
10/11/2020	120	2,068,999	1,301	1,088	11/11/2020	114	2,093,282	1,127	950	12/11/2020	115	2,114,053	1,038	903
10/12/2020	115	2,069,851	1,300	1,022	11/12/2020	111	2,093,943	1,136	993	12/12/2020	115	2,114,736	1,044	941
10/13/2020	120	2,070,631	1,217	965	11/13/2020	116	2,094,655	1,122	971	12/13/2020	114	2,115,315	1,020	892
10/14/2020	120	2,071,577	1,333	1,017	11/14/2020	115	2,095,425	1,159	989	12/14/2020	115	2,116,048	1,041	927
10/15/2020	120	2,072,323	1,254	1,039	11/15/2020	115	2,096,122	1,088	954	12/15/2020	116	2,116,622	1,021	901
10/16/2020	120	2,073,240	1,359	1,126	11/16/2020	115	2,096,776	1,126	968	12/16/2020	114	2,117,267	1,030	909
10/17/2020	120	2,074,069	1,291	1,103	11/17/2020	115	2,097,497	1,173	993	12/17/2020	115	2,117,901	1,029	901
10/18/2020	120	2,074,960	1,319	1,101	11/18/2020	115	2,098,238	1,146	979	12/18/2020	115	2,118,550	1,032	908
10/19/2020	120	2,075,834	1,379	1,124	11/19/2020	115	2,099,044	1,292	1,096	12/19/2020	115	2,119,165	1,022	898
10/20/2020	120	2,076,693	1,359	1,156	11/20/2020	115	2,099,783	1,185	1,041	12/20/2020	115	2,119,823	1,017	888
10/21/2020	120	2,077,532	1,277	1,077	11/21/2020	116	2,100,498	1,133	978	12/21/2020	115	2,120,532	1,033	897
10/22/2020	120	2,078,360	1,227	1,018	11/22/2020	115	2,101,189	1,129	961	12/22/2020	115	2,121,164	1,017	889
10/23/2020	NA	2,079,157	NA	983	11/23/2020	115	2,101,974	1,148	970	12/23/2020	115	2,121,814	1,039	923
10/24/2020	120	2,079,987	1,224	1,028	11/24/2020	115	2,102,663	1,108	969	12/24/2020	112	2,122,381	1,017	895
10/25/2020	120	2,080,701	1,162	1,066	11/25/2020	115	2,103,368	1,145	965	12/25/2020	106	2,122,939	1,008	853
10/26/2020	118	2,081,533	1,172	1,001	11/26/2020	115	2,104,029	1,098	962	12/26/2020	114	2,123,645	1,034	915
10/27/2020	120	2,082,205	1,130	993	11/27/2020	115	2,104,730	1,080	932	12/27/2020	115	2,124,283	1,024	895
10/28/2020	116	2,082,978	1,261	1,026	11/28/2020	115	2,105,406	1,079	926	12/28/2020	110	2,124,894	1,011	885
10/29/2020	115	2,083,824	1,353	1,146	11/29/2020	115	2,106,081	1,063	918	12/29/2020	108	2,125,472	1,003	863
10/30/2020	116	2,084,668	1,317	1,173	11/30/2020	115	2,106,795	1,084	925	12/30/2020	108	2,126,076	1,008	881
10/31/2020	117	2,085,407	1,223	1,134						12/31/2020	115	2,126,656	1,007	879

Weekly Influent - Effluent Summary; Q4 2020

Date	Influent (Gal.)	Effluent (Gal.)	Diff Inf-Eff (Gal.)	Diff Inf-Eff (gpm)	
10/02 to 10/08/20	12,819,920	9,536,791	3,283,129	326	
10/09 to 10/15/20	13,053,564	10,455,085	2,598,479	258	
10/16 to 10/22/20	13,262,819	11,095,081	2,167,738	215	
10/23 to 10/29/20	12,266,715	10,431,953	1,834,762	182	
10/30 to 11/05/20	11,900,537	10,396,461	1,504,076	149	
11/06 to 11/12/20	11,364,510	9,750,673	1,613,837	160	
11/13 to 11/19/20	11,672,697	10,009,051	1,663,646	165	
11/20 to 11/26/20	11,442,768	9,856,897	1,585,871	157	
11/27 to 12/03/20	10,836,053	9,339,448	1,496,605	148	
12/04 to 12/10/20	10,616,868	9,328,987	1,287,881	128	
12/11 to 12/17/20	10,406,414	9,175,857	1,230,557	122	
12/18 to 12/24/20	10,334,175	9,070,086	1,264,089	125	
12/25 to 12/31/20	10,217,285	8,885,063	1,332,222	132	
Total Quarter	150,194,325	127,331,433	22,862,892		Gallons

174	Quarterly Ave.

Appendix C
Operation and Maintenance Event, and Training Logs

2020 BTL O&M Events Log			
1-Oct-20	8:30	Operating dry vault pumps, north and south lines. Changed South line discharge to HCC, now using new 6025 flow module	Daily MSD
1-Oct-20	8:30	Used Oakton meter due to Insitu meter not reading S/C	
2-Oct-20	8:00	Operating dry vault pumps, north and south lines.	Daily MSD
2-Oct-20	8:00	Used Oakton meter due to Insitu meter not reading S/C	Daily Cell
3-Oct-20	8:55	Operating dry vault pumps, north and south lines.	Daily MSD
3-Oct-20	8:55	Used YSI meter from WSP due to Insitu meter not reading S/C	Daily Cell
4-Oct-20	7:35	Operating dry vault pumps, north and south lines.	Daily MSD
4-Oct-20	7:35	Used YSI meter from WSP due to Insitu meter not reading S/C	Daily Cell
5-Oct-20	9:10	Operating dry vault pumps, north and south lines.	Daily MSD
5-Oct-20	9:10	Used Oakton meter due to Insitu meter not reading S/C/ Feed rate lowered to 120 @ 11:30	Daily Cell
6-Oct-20	8:40	Operating dry vault pumps, north and south lines. Jetting subdrain	Daily MSD
6-Oct-20	8:40	Used new YSI meter.	Daily Cell
7-Oct-20	8:10	Operating dry vault pumps, north and south lines. Jetting subdrain	Daily MSD
7-Oct-20	8:10	Now using new YSI meter for BTL parameters	Daily Cell
8-Oct-20	8:30	Operating dry vault pumps, north and south lines. Pigging north and south discharge lines to BRW.	Daily MSD
9-Oct-20	12:00	Operating dry vault pumps, north and south lines. BRW discharge SCADA down for NWE work on power lines.	Daily MSD
10-Oct-20	8:45	Operating dry vault pumps, north and south lines.	Daily MSD
11-Oct-20	8:00	Operating dry vault pumps, north and south lines.	Daily MSD
12-Oct-20	9:00	Operating dry vault pumps, north and south lines.	Daily MSD
13-Oct-20	8:30	Operating dry vault pumps, north and south lines.	Daily MSD
14-Oct-20	10:30	Operating dry vault pumps, north and south lines.	Daily MSD
15-Oct-20	8:15	Operating dry vault pumps, north and south lines.	Daily MSD
16-Oct-20	9:00	Operating dry vault pumps, north and south lines.	Daily MSD
17-Oct-20	8:30	Operating dry vault pumps, north and south lines.	Daily MSD
18-Oct-20	9:15	Operating dry vault pumps, north and south lines.	Daily MSD
19-Oct-20	8:35	Operating dry vault pumps, north and south lines.	Daily MSD
20-Oct-20	7:45	Operating dry vault pumps, north and south lines.	Daily MSD
21-Oct-20	7:50	Operating dry vault pumps, north and south lines.	Daily MSD
22-Oct-20	8:30	Operating dry vault pumps, north and south lines.	Daily MSD
22-Oct-20	8:30	Switched to IPS pump #1 @1330	Daily Cell
23-Oct-20	9:40	Operating dry vault pumps, north and south lines.	Daily MSD
24-Oct-20	10:30	Operating dry vault pumps, north and south lines.	Daily MSD
25-Oct-20	9:00	Operating dry vault pumps, north and south lines.	Daily MSD
26-Oct-20	11:30	Operating dry vault pumps, north and south lines.	Daily MSD
26-Oct-20	11:30	All ponds 90% froze over the weekend	Daily Cell
27-Oct-20	9:15	Operating dry vault pumps, north and south lines.	Daily MSD
27-Oct-20	9:15	Feed rate changed to 115mg/l @ 11:00	Daily Cell
28-Oct-20	8:35	Operating dry vault pumps, north and south lines.	Daily MSD
29-Oct-20	8:30	Operating dry vault pumps, north and south lines.	Daily MSD
30-Oct-20	8:55	Operating dry vault pumps, north and south lines.	Daily MSD
31-Oct-20	7:45	Operating dry vault pumps, north and south lines.	Daily MSD
31-Oct-20	7:45	Used YSI meter from WSP	Daily Cell
1-Nov-20	7:30	Operating dry vault pumps, north and south lines.	Daily MSD
1-Nov-20	7:30	Used YSI meter from WSP	Daily Cell
2-Nov-20	8:05	Operating dry vault pumps, north and south lines.	Daily MSD
3-Nov-20	7:50	Operating dry vault pumps, north and south lines.	Daily MSD
4-Nov-20	10:25	Operating dry vault pumps, north and south lines.	Daily MSD
5-Nov-20	8:15	Operating dry vault pumps, north and south lines.	Daily MSD
6-Nov-20	8:35	Operating dry vault pumps, north and south lines.	Daily MSD
7-Nov-20	7:35	Operating dry vault pumps, north and south lines.	Daily MSD
8-Nov-20	8:45	Operating dry vault pumps, north and south lines.	Daily MSD
8-Nov-20	8:45	Used WSP meter	Daily Cell
9-Nov-20	7:05	Operating dry vault pumps, north and south lines.	Daily MSD
9-Nov-20	7:05	Used WSP meter	Daily Cell
10-Nov-20	8:30	Operating dry vault pumps, north and south lines.	Daily MSD
10-Nov-20	8:30	All ponds 90% froze over the weekend	Daily Cell
11-Nov-20	8:50	Operating dry vault pumps, north and south lines.	Daily MSD
11-Nov-20	8:50	Feeder off for aproximatley 1 hr to change screw conveyor motor	Daily Cell

2020 BTL O&M Events Log			
12-Nov-20	7:55	Operating dry vault pumps, north and south lines.	Daily MSD
13-Nov-20	8:00	Operating dry vault pumps, north and south lines.	Daily MSD
14-Nov-20	9:30	Operating dry vault pumps, north and south lines.	Daily MSD
15-Nov-20	10:00	Operating dry vault pumps, north and south lines.	Daily MSD
16-Nov-20	8:15	Operating dry vault pumps, north and south lines.	Daily MSD
17-Nov-20	7:45	Operating dry vault pumps, north and south lines.	Daily MSD
17-Nov-20	7:45	C02 turned ON to 5 CFS @ 13:00	Daily Cell
18-Nov-20	8:30	Operating dry vault pumps, north and south lines.	Daily MSD
19-Nov-20	8:20	Operating dry vault pumps, north and south lines.	Daily MSD
20-Nov-20	8:10	Operating dry vault pumps, north and south lines.	Daily MSD
21-Nov-20	8:10	Operating dry vault pumps, north and south lines.	Daily MSD
22-Nov-20	7:35	Operating dry vault pumps, north and south lines.	Daily MSD
23-Nov-20	9:45	Operating dry vault pumps, north and south lines.	Daily MSD
24-Nov-20	9:30	Operating dry vault pumps, north and south lines.	Daily MSD
25-Nov-20	9:00	Operating dry vault pumps, north and south lines.	Daily MSD
26-Nov-20	8:00	Operating dry vault pumps, north and south lines.	Daily MSD
27-Nov-20	8:50	Operating dry vault pumps, north and south lines.	Daily MSD
28-Nov-20	8:45	Operating dry vault pumps, north and south lines.	Daily MSD
29-Nov-20	9:00	Operating dry vault pumps, north and south lines.	Daily MSD
30-Nov-20	10:15	Operating dry vault pumps, north and south lines.	Daily MSD
1-Dec-20	8:40	Operating dry vault pumps, north and south lines.	Daily MSD
2-Dec-20	8:55	Operating dry vault pumps, north and south lines.	Daily MSD
3-Dec-20	9:30	Operating dry vault pumps, north and south lines.	Daily MSD
3-Dec-20	9:30	IPS pump OFF for aproximatley 30 mins for Colbert to connect power to D4 dredge disconnect	Daily Cell
4-Dec-20	9:10	Operating dry vault pumps, north and south lines.	Daily MSD
5-Dec-20	13:00	Operating dry vault pumps, north and south lines.	Daily MSD
6-Dec-20	12:30	Operating dry vault pumps, north and south lines.	Daily MSD
7-Dec-20	9:45	Operating dry vault pumps, north and south lines.	Daily MSD
8-Dec-20	8:30	Operating dry vault pumps, north and south lines.	Daily MSD
9-Dec-20	7:40	Operating dry vault pumps, north and south lines.	Daily MSD
10-Dec-20	9:15	Operating dry vault pumps, north and south lines.	Daily MSD
11-Dec-20	9:00	Operating dry vault pumps, north and south lines.	Daily MSD
12-Dec-20	10:00	Operating dry vault pumps, north and south lines.	Daily MSD
13-Dec-20	8:00	Operating dry vault pumps, north and south lines.	Daily MSD
14-Dec-20	11:00	Operating dry vault pumps, north and south lines.	Daily MSD
15-Dec-20	8:25	Operating dry vault pumps, north and south lines.	Daily MSD
15-Dec-20	8:25	Feeder OFF for aproximatley 20 mins to check scew conveyor bolts	Daily Cell
16-Dec-20	8:35	Operating dry vault pumps, north and south lines.	Daily MSD
16-Dec-20	8:35	Feeder OFF for aproximatley 20 minutes to replace screw conveyor bolts	Daily Cell
17-Dec-20	8:15	Operating dry vault pumps, north and south lines.	Daily MSD
18-Dec-20	8:15	Operating dry vault pumps, north and south lines.	Daily MSD
19-Dec-20	7:15	Operating dry vault pumps, north and south lines.	Daily MSD
20-Dec-20	8:00	Operating dry vault pumps, north and south lines.	Daily MSD
21-Dec-20	10:15	Operating dry vault pumps, north and south lines.	Daily MSD
22-Dec-20	10:00	Operating dry vault pumps, north and south lines.	Daily MSD
23-Dec-20	10:00	Operating dry vault pumps, north and south lines.	Daily MSD
23-Dec-20	10:00	Feeder OFF for aproximatley 15 mins to check new screw conveyor bolts	Daily Cell
24-Dec-20	7:55	Operating dry vault pumps, north and south lines.	Daily MSD
25-Dec-20	7:00	Operating dry vault pumps, north and south lines.	Daily MSD
26-Dec-20	9:30	Operating dry vault pumps, north and south lines.	Daily MSD
27-Dec-20	9:15	Operating dry vault pumps, north and south lines.	Daily MSD
28-Dec-20	9:30	Operating dry vault pumps, north and south lines.	Daily MSD
29-Dec-20	9:00	Operating dry vault pumps, north and south lines.	Daily MSD
29-Dec-20	9:00	Silo knife gate stuck open on arrival, totalized lime value low. Operators manually closed.	Daily Cell
30-Dec-20	9:20	Operating dry vault pumps, north and south lines.	Daily MSD
31-Dec-20	7:20	Operating dry vault pumps, north and south lines.	Daily MSD

Date	Time	Operator(s)/Staff	Temp	Weather	Operations	Contractor Work	Observations/Field Issues	Inspection Follow-Ups	Visitors to Site	Safety Topics/Meetings/Pre-Entries
1-Oct-20	8:30	Taylor Stanich, Kaleb Ferriter	35 to 73F	Clear, sunny	Daily site checks, daily parameters, Weekly sampling, Weekly epa summary report, monitor dredge operations, clean distrabution tank and weir gates	JCL dredging C1, boat ramp	Operating dry vault pumps, north and south lines.	CO2 OFF	Jesse Bryant - PTS	sanitation
2-Oct-20	8:00	Taylor Stanich	38 to 71F	Parly cloudy	Daily site checks, Daily parameters, waterfowl survey, decant water from north drying bed, clean lime silo		Operating dry vault pumps, north and south lines.	CO2 OFF		Review SOP for MSD flow module removal
3-Oct-20	8:55	Rob Neff	32 to 73F	Mostly sunny	Daily site checks, daily parameters		Operating dry vault pumps, north and south lines.	CO2 OFF		Working alone - communication
4-Oct-20	7:35	Rob Neff	34 to 75F	Sunny, hazy	Daily site checks, daily parameters		Operating dry vault pumps, north and south lines.	CO2 OFF		Working alone - communication
5-Oct-20	9:10	Taylor Stanich	34 to 71F	Sunny, hazy	Daily site checks, Daily parameters, MSD site/generator checks, Weekly compliance sampling, BTL bird survey	JCI dreding C1, D4 boat ramp	Operating dry vault pumps, north and south lines.	CO2 OFF		Weekly sampling review sds for HN03
6-Oct-20	8:40	Taylor Stanich, Kaleb Ferriter	32 to 75F	Sunny	Daily site checks, Daily parameters, WCP and IPS site/generator checks, waterfowl survey.	JCL dredging C1, boat ramp, subdrain jetting	Operating dry vault pumps, north and south lines.	CO2 OFF	Jesse Bryant - PTS	eye protection
7-Oct-20	8:10	Taylor Stanich	30 to 74F	Clear, sunny	Daily site checks, daily parameters, BRW staff gauge monitoring, BTL waterfowl survey	JCI dredging C1, D4 boat ramp, subdrain	Operating dry vault pumps, north and south lines.	CO2 OFF		MSD Jetting
8-Oct-20	8:30	Taylor Stanich/Kaleb Ferriter	32 to 73F	Mostly sunny	Daily site checks, daily parameters, Weekly sampling, BTL birds surveys.	JCI dredging C1, boat ramp, force main	Operating dry vault pumps, north and south lines.	CO2 OFF	Jesse Bryant - PTS	MSD pigging
9-Oct-20	12:00	Brad Hollamon	32 to 70 F	Mostly sunny, hazy	Daily site checks, Daily parameters, waterfowl survey, decant water from north drying bed.		Operating dry vault pumps, north and south lines.	CO2 OFF	NWE working on power in BRW area, power off most of day.	Air quality, minimize outdoor activities.
10-Oct-20	8:45	Taylor Stanich	34F	mostly sunny	Daily site checks, Daily parameters, weekend checks		Operating dry vault pumps, north and south lines.	CO2 OFF		Working alone - communication
11-Oct-20	8:00	Taylor Stanich	34F	mostly sunny	Daily site checks, Daily parameters, weekend checks		Operating dry vault pumps, north and south lines.	CO2 OFF		Working alone - communication
12-Oct-20	9:00	Taylor Stanich	35 to 54F	Overcast, windy	Daily site checks, daily parameters, Weekly sampling, BTL birds surveys. MSD site/generator checks, close out emms tasks	JCI dredging C1/ finished D4 boat ramp	Operating dry vault pumps, north and south lines.	CO2 OFF		Weekly sampling review sds for HN03
13-Oct-20	8:30	Taylor Stanich/Kaleb Ferriter	32 to 55F	Cloudy	Daily site checks, Daily parameters, WCP and IPS site/generator checks, Help JCI with dredge demobilization	JCI Dredge demobilization	Operating dry vault pumps, north and south lines.	CO2 OFF		hand tool safety
14-Oct-20	10:30	Taylor Stanich	34 to 46F	Overcast, windy	Daily site checks, daily parameters, BRW staff gauge monitoring, waterfowl survey, monthly operations meeting,		Operating dry vault pumps, north and south lines.	CO2 OFF		site security
15-Oct-20	8:15	Taylor Stanich/Kaleb Ferriter	24 to 44F	Snow showers	Daily site checks, daily parameters, waterfowl survey, weekly sampling, weekly epa summary report		Operating dry vault pumps, north and south lines.	CO2 OFF		Slushy driving conditions
16-Oct-20	9:00	Brad Hollamon	39 to 57F	Cool,windy, mostly cloudy	Daily site checks, daily parameters, waterfowl survey.		Operating dry vault pumps, north and south lines.	CO2 OFF		Windy conditions, be careful opening building and vehicle doors.
17-Oct-20	8:30	Steve Lubick	27 to 45 F	Overcast rain showers	Daily site checks, Daily parameters, weekend checks		Operating dry vault pumps, north and south lines.	CO2 OFF		Working alone - communication
18-Oct-20	9:15	Steve Lubick	37 to 41 F	Overcast snow showers	Daily site checks, Daily parameters, weekend checks		Operating dry vault pumps, north and south lines.	CO2 OFF		Working alone - communication
19-Oct-20	8:35	Taylor Stanich	46 to 52F	Overcast	Daily site checks, Daily parameters, Monthly compliance sampling, MSD site/generator checks, waterfowl survey	JCI removing cattails from MSD ditch	Operating dry vault pumps, north and south lines.	CO2 OFF		Monthly sampling- review sds for HNO3 and H2SO4

20-Oct-20	7:45	Taylor Stanich, Kaleb Ferriter	40 to 50F	Overcast	Daily site checks, Daily parameters, MSD and WCP site/generator checks, waterfowl survey, reinstall MSD flow modules	JCI removing cattails from MSD ditch	Operating dry vault pumps, north and south lines.	CO2 OFF		Driving in the rain
21-Oct-20	7:50	Taylor Stanich	34 to 41F	Overcast	Daily site checks, Daily parameters, BRW staff gauge monitoring, waterfowl survey, clean distrabution tank/weir gates, site freeze protection	JCI removing cattails from MSD ditch	Operating dry vault pumps, north and south lines.	CO2 OFF		site freeze protection
22-Oct-20	8:30	Taylor Stanich, Kaleb Ferriter	8 to 28F	cloudy	Daily site checks, daily parameters, Weekly sampling, waterfowl survey, switch IPS pumps, preform IPS pump maintenance		Operating dry vault pumps, north and south lines.	CO2 OFF		cold weater conditions
23-Oct-20	9:40	Taylor Stanich	10 to 30F	mostly cloudy	Daily site checks, Daily parameters, waterfowl survey, clean influent slurry tank lines		Operating dry vault pumps, north and south lines.	CO2 OFF		Continuing social distancing
24-Oct-20	10:30	Kaleb Ferriter	-11 to 14F	Snow showers	Daily site checks, daily parameters		Operating dry vault pumps, north and south lines.	CO2 OFF		Working alone - communication
25-Oct-20	9:00	Kaleb Ferriter	-11 to 14F	cloudy	Daily site checks, daily parameters		Operating dry vault pumps, north and south lines.	CO2 OFF		Working alone - communication
26-Oct-20	11:30	Taylor Stanich	-8 to 24 F	overcast	Daily site checks, Daily parameters, Weekly compliance sampling, waterfowl survey, MSD site/generator checks, site snow removal		Operating dry vault pumps, north and south lines.	CO2 OFF		Cold weather conditions
27-Oct-20	9:15	Taylor Stanich, Kaleb Ferriter	17 to 40F	Partly cloudy	Daily site checks, daily parameters, fueled site trucks, WCP and IPS site/generator checks, waterfowl survey, game camera checks, clean CAS building		Operating dry vault pumps, north and south lines.	CO2 OFF		sanitation
28-Oct-20	8:35	Taylor Stanich	24 to 43F	Mostly cloudy	Daily site checks, daily parameters, waterfowl survey, BRW staff gauge monitoring		Operating dry vault pumps, north and south lines.	CO2 OFF		snow and ice
29-Oct-20	8:30	Taylor Stanich, Kaleb Ferriter	23 to 51F	partly cloudy	Daily site checks, daily parameters, weekly sampling, waterfowl survey, weekly epa summary report, truck 63 oil change,		Operating dry vault pumps, north and south lines.	CO2 OFF		physical hazards
30-Oct-20	8:55	Taylor Stanich	24 to 54F	partly cloudy	Daily site checks, daily parameters, waterfowl survey, clean lime silo		Operating dry vault pumps, north and south lines.	CO2 OFF		Review SOP for Lime silo cleaning
31-Oct-20	7:45	Rob Neff	19 to 48F	Mostly sunny	Daily site checks, daily parameters		Operating dry vault pumps, north and south lines.	CO2 OFF		Working alone - communication
1-Nov-20	7:30	Rob Neff	23 to 59F	Mostly sunny	Daily site checks, daily parameters		Operating dry vault pumps, north and south lines.	CO2 OFF		Working alone - communication
2-Nov-20	8:05	Taylor Stanich	36 to 62F	Mostly sunny	Daily site checks, Daily parameters, Weekly sampling, waterfowl survey, MSD site/generator checks, 4q site inspections		Operating dry vault pumps, north and south lines.	CO2 OFF		Weekly sampling review sds for HN03
3-Nov-20	7:50	Taylor Stanich	28 to 60F	Clear, sunny	Daily site checks, Daily parameters, wcp and ips site/generator checks, waterfowl survey, 4q inspections		Operating dry vault pumps, north and south lines.	CO2 OFF		Hygiene, wash hands
4-Nov-20	10:25	Taylor Stanich	30 to 56F	Partly cloudy	Daily site checks, Daily parameters, BRW staff gauge monitoring, Monthly operations meeting, 4q inspections		Operating dry vault pumps, north and south lines.	CO2 OFF		Proper footwear
5-Nov-20	8:15	Taylor Stanich, Kaleb Ferriter	34 to 64F	Mostly Sunny	Daily site checks, Daily parameters, weekly sampling, waterfowl survey, weekly epa summary report, 4Q inspections		Operating dry vault pumps, north and south lines.	CO2 OFF		sanitation

6-Nov-20	8:35	Taylor Stanich	32F	Overcast	Daily site checks, Daily parameters, waterfowl survey		Operating dry vault pumps, north and south lines.	CO2 OFF		working alone-communication'
7-Nov-20	7:35	Taylor Stanich	32F	Overcast	Daily site checks, Daily parameters, weekend checks		Operating dry vault pumps, north and south lines.	CO2 OFF		working alone-communication'
8-Nov-20	8:45	Taylor Stanich	16F	Overcast	Daily site checks, Daily parameters,		Operating dry vault pumps, north and south lines.	CO2 OFF		working alone-communication'
9-Nov-20	7:05	Taylor Stanich, Rob Neff	0 to 12F	overcast	Daily site checks, Daily parameters, weekly sampling, waterfowl survey, close out emms taskss		Operating dry vault pumps, north and south lines.	CO2 OFF		snow and ice
10-Nov-20	8:30	Taylot Stanich/Kaleb Ferriter	16 to 30F	Cloudy	Daily site checks, daily parameters, IPS/WCP gen checks, waterfowl survey, 4q inspections		Operating dry vault pumps, north and south lines.	CO2 OFF		Slips, trips and falls
11-Nov-20	8:50	Taylor Stanich	10 to 29F	overcast/snow showers	Daily site checks, Daily parameters, waterfowl survey, brw staff gauge monitoring, Replaced screw conveyor motor	Dave Colbert-CASB Replaced screw conveyor motor.	Operating dry vault pumps, north and south lines. Replaced screw conveyor bolts.	CO2 OFF		Winter weather advisory
12-Nov-20	7:55	Taylor Stanich	8 to 28F	Partly cloudy	Daily site checks, Daily parameters, weekly sampling, waterfowl survey, weekly epa summary report	JCI Lime delivery	Operating dry vault pumps, north and south lines.	CO2 OFF		Weekly sampling review sds for HN03
13-Nov-20	8:00	Rob Neff	12 to 36F	Partly cloudy	Daily site checks, Daily parameters, waterfowl survey	Dave Colbert-IPS Locate conduit.	Operating dry vault pumps, north and south lines.	CO2 OFF		working alone-communication
14-Nov-20	9:30	Jesse Sims	18 to 33F	Partly Cloudy	Daily site checks, Daily parameters		Operating dry vault pumps, north and south lines.	CO2 OFF		working alone-communication
15-Nov-20	10:00	Jesse Sims	25 to 42F	Partly Cloudy	Daily site checks, Daily parameters		Operating dry vault pumps, north and south lines.	CO2 OFF		working alone-communication
16-Nov-20	8:15	Taylor Stanich	27 to 39F	overcast	Daily site checks, Daily parameters, monthly compliance sampling, waterfowl survey, MSD site/generator checks, msd subdrain downloads		Operating dry vault pumps, north and south lines.	CO2 OFF		Monthly sampling- review sds for HNO3 and H2SO4
17-Nov-20	7:45	Taylor Stanich, Rob Neff	28 to 48F	Mostly sunny	Daily site checks, Daily parameters, WCP an IPS site/generator checks, waterfowl survey, MSD subdrain sampling		Operating dry vault pumps, north and south lines.	C02 @ 5cfh		Review SOP for MSD Subdrain sampling
18-Nov-20	8:30	Taylor Stanich	32 to 46F	Overcast, rain showers	Daily site checks, Daily parameters, waterfowl survey, BRW staff gauge monitoring		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		Social distancing
19-Nov-20	8:20	Taylor Stanich	31 to 37F	Partly cloudy	Daily site checks, daily parameters, weekly sampling, weekly epa summary report, waterfowl survey,	Colbert elec.-IPS d4 dredge power	Operating dry vault pumps, north and south lines.	C02 @ 5cfh		HI-PO incident- be aware of surroundings
20-Nov-20	8:10	Taylor Stanich	19 to 36F	Partly cloudy	Daily site checks, Daily parameters, waterfowl survey		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		Hygiene, wash hands
21-Nov-20	8:10	Rob Neff	5 to 36F	Mostlysunny	Daily site checks, Daily parameters		Operating dry vault pumps, north and south lines.	C02 @ 5cfh		Working alone-communication
22-Nov-20	7:35	Rob Neff	10 to 37F	Partly cloudy	Daily site checks, Daily parameters		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		Working alone-communication
23-Nov-20	9:45	Taylor Stanich	18 to 32F	Mostly cloudy	Daily site checks, Daily parameters, Weekly sampling, Close out emms tasks, MSD site/generator checks, waterfowl survey		Operating dry vault pumps, north and south lines.	C02 @ 5cfh		Weekly sampling review sds for HN03
24-Nov-20	9:30	Taylor Stanich	30 to 37F	Mostlly sunny	Daily site checks, Daily parameters, WCP and IPS site/generator checks, waterfowl survey, psd inspections, Monthly c02 inspection, brw crane maintenance		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		sanitation
25-Nov-20	9:00	Taylor Stanich	30 to 34F	Cloudy, scattered snow	Daily site checks, Daily parameters, waterfowl survey, BRW staff gauge monitoring,		Operating dry vault pumps, north and south lines.	C02 @ 5cfh		snow showers possible

26-Nov-20	8:00	Kaleb Ferriter	12 to 32F	Partly cloudy	Daily site checks, daily parameters, weekly sampling, waterfowl survey		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		face coverings
27-Nov-20	8:50	Taylor Stanich	16 to 34F	Partly cloudy	Daily site checks, Daily parameters, Waterfowl survey, Weekly EPA summary report		Operating dry vault pumps, north and south lines.	C02 @ 5cfh		working alone-communication
28-Nov-20	8:45	Steve Lubick	12 to 40F	Partly cloudy	Daily site checks, Daily parameters		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		working alone-communication
29-Nov-20	9:00	Steve Lubick	10 to 37 F	Clear	Daily site checks, Daily parameters		Operating dry vault pumps, north and south lines.	C02 @ 5cfh		working alone-communication
30-Nov-20	10:15	Taylor Stanich	8 to 34F	Mostly cloudy	Daily site checks, Daily parameters, Weekly sampling, waterfowl survey, MSD site/generator checks, 4q site inspections		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		Cold weather conditions
1-Dec-20	8:40	Taylor Stanich/Kaleb Ferriter	9 to 34F	Mostly cloudy	Daily site checks, daily parameters, mileage logs, waterfowl survey, WCP and IPS site/generator checks, clean c channel		Operating dry vault pumps, north and south lines.	C02 @ 5cfh		Social distancing
2-Dec-20	8:55	Taylor Stanich	9 to 38F	Clear	Daily site checks, Daily parameters, waterfowl survey, BRW staff gauge monitoring, freeway wetlands maintenance, clean b channel		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		Slips trips and falls
3-Dec-20	9:30	Taylor Stanich/Kaleb Ferriter	12 to 41F	Clear	Daily site checks, daily parameters, weekly sampling, waterfowl survey, weekly epa summary report,	Colbert-connect power to IPS dredge connect	Operating dry vault pumps, north and south lines.	C02 @ 5cfh		icy roads
4-Dec-20	9:10	Taylor Stanich	12 to 42F	Clear, Sunny	Daily site checks, Daily parameters, waterfowl survey, clean lime silo		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		sanitation
5-Dec-20	13:00	Jesse Sims	12 to 39F	Clear Sunny	Daily site checks, Daily parameters		Operating dry vault pumps, north and south lines.	C02 @ 5cfh		working alone-communication
6-Dec-20	12:30	Jesse Sims	12 to 41F	Clear Sunny	Daily site checks, Daily parameters		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		working alone-communication
7-Dec-20	9:45	Taylor Stanich/Kaleb Ferriter	16 to 43F	Mostly Sunny	Daily site checks, Daily parameters, weekly sampling, site vehicle inspections, waterfowl survey, pulled weeds from HCC, close out emms tasks		Operating dry vault pumps, north and south lines.	C02 @ 5cfh		eye protection
8-Dec-20	8:30	Taylor Stanich, Kaleb Ferriter	17 to 47F	Moslty sunny	Daily site checks, Daily parameters, WCP and IPS site/generator checks, waterfowl survey, truck 49 oil change, msd subdrain downloads		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		hand tool safety
9-Dec-20	7:40	Taylor Stanich, Kaleb Ferriter	23 to 42F	Partly cloudy	Daily site checks, Daily parameters, waterfowl survey, BRW staff gauge monitoring, monthly operations meeting		Operating dry vault pumps, north and south lines.	C02 @ 5cfh		proper mask wear
10-Dec-20	9:15	Taylor Stanich, Kaleb Ferriter	8 to 35F	Mostly sunny	Daily site checks, Daily parameters, waterfowl survey, weekly sampling, grease HCC headgate, screw conveyor and weir gates, fire extinguishers, weekly epa summary report		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		importance of hard hat
11-Dec-20	9:00	Taylor Stanich, Kaleb Ferriter	9 to 27F	Cloudy	Daily site checks, daily parameters, IPS pump maintenance, clean A/B/C channel, waterfowl survey, update lao dialer		Operating dry vault pumps, north and south lines.	C02 @ 5cfh		cold weather gear
12-Dec-20	10:00	Kaleb Ferriter	3 to 27F	Cloudy	Daily site checks, daily parameters		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		working alone - communication
13-Dec-20	8:00	Kaleb Ferriter	7 to 28F	Clear	Daily site checks, daily parameters		Operating dry vault pumps, north and south lines.	C02 @ 5cfh		Working alone - communication

14-Dec-20	11:00	Taylor Stanich, Kaleb Ferriter	10 to 30F	Cloudy	Daily site checks, daily parameters, MSD site/gen check, monthly sampling, waterfowl survey, shovel snow		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		Monthly sampling- review sds for HNO3 and H2SO4
15-Dec-20	8:25	Taylor Stanich, Kaleb Ferriter	8 to 28F	Partly cloudy	Daily site checks, Daily parameters, WCP and IPS site/generator checks, waterfowl survey, download site cameras, inspect screw conveyor bolts		Operating dry vault pumps, north and south lines.	C02 @ 5cfh		Cold weather conditions
16-Dec-20	8:35	Taylor Stanich, Kaleb Ferriter	31 to 38F	Partly cloudy	Daily site checks, Daily parameters, BRW staff gauge monitoring, waterfowl survey, replace sampler tubing @ cas and asb, replace screw conveyor bolts		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		Social distancing
17-Dec-20	8:15	Taylor Stanich, Kaleb Ferriter	29 to 37F	Mostly cloudy	Daily site checks, Daily parameters, weekly sampling, waterfowl survey, clean lime silo, weekly epa summary report	JCI Lime delivery	Operating dry vault pumps, north and south lines.	C02 @ 5cfh		Review SOP for Lime silo cleaning
18-Dec-20	8:15	Taylor Stanich	28 to 35F	Overcast	Daily site checks, Daily parameters, waterfowl survey, update lao dialer		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		Working alone-communication
19-Dec-20	9:15	Taylor Stanich	29 to 35F	Overcast	Daily site checks, Daily parameters, weekend checks		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		Working alone-communication
20-Dec-20	10:15	Taylor Stanich	30 to 35F	Overcast	Daily site checks, Daily parameters, weekend checks		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		Working alone-communication
21-Dec-20	10:15	Taylor Stanich,Kaleb Ferriter	25 to 48F	Overcast	Daily site checks, Daily parameters, weekly sampling, Waterfowl survey, MSD site/gen inspection, close out emms tasks		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		driving on muddy roads
22-Dec-20	10:00	Taylor Stanich, Kaleb Ferriter	9 to 28F	cloudy/windy	Daily site checks, Daily parameters, waterfowl survey, checked screw conveyor bolts,		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		Winter weather advisory
23-Dec-20	10:00	Taylor Stanich,Kaleb Ferriter	5 to 29F	mostly sunny	Daily site checks, daily parameters, TRA for effluent sampline pipe, waterfowl survey, BRW staff gauge monitoring		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		Slips trips and falls
24-Dec-20	7:55	Taylor Stanich	8 to 27F	Moslty sunny	Daily site checks, Daily parameters, Weekly sampling, waterfowl survey, weekly epa summary report		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		Weekly sampling review sds for HN03
25-Dec-20	7:00	Rob Neff	12 to 36F	Mostly sunny	Daily site checks, daily parameters		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		Holiday weekend check
26-Dec-20	9:30	Steve Lubick	18 to 37 F	Overcast	Daily site checks, daily parameters		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		Working alone-communication
27-Dec-20	9:15	Steve Lubick	3 to 30 F	Overcast	Daily site checks, daily parameters		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		Working alone-communication
28-Dec-20	9:30	Kaleb Ferriter	3 to 33F	Mostly Sunny	Daily site checks, Daily parameters, closed out emms tasks, waterfowl survey, weekly sampling, dropped samples off to fedex		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		Working alione-communication
29-Dec-20	9:00	Kaleb Ferriter	0 to 35F	Foggy	Daily site checks, daily parameters, waterfowl survey, shoveled snow, picked up toilet paper from montana broom, WCP/IPS/CASB site and generator inspections, ice packs,		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		icy roads
30-Dec-20	9:20	Kaleb Ferriter	10 to 35F	Mostly cloudy	Daily site checks, daily parameters, waterfowl survey, BRW staff gauges, sprayed out distribution tanks/slurry tank/sluice trough		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		hard hats

31-Dec-20	7:20	Rob Neff, Steve Lubick	19 to 34F	Partly cloudy	Daily site checks, Daily parameters, Weekly sampling, waterfowl survey, weekly epa summary report		Operating dry vault pumps, north and south lines.	CO2 @ 5cfh		Icy roads

Butte Treatment Lagoons
Operator SOP Training Log

Operator: Robert Neff

SOP Number	SOP Title	Operator Trained on Procedure (Date)	Operator Demonstrated Procedure (Date)	Supervisor Observing Procedure (Initials)	Operator Re-Trained on Procudure (Date)	Operator Annual Refresher (Date)	Notes/Comments, etc.
SOP	**Procedure Title**						
1	Chemical Addition System (CAS) Building Initial Arrival Operation Status Check	January-17	February-17	BH	July-17	April. 2020	
2	Daily Lower Area One (LAO) Cell Sampling and Analyzing.	January-17	February-17	BH	July-17	April. 2020	
3	Gravimetric Lime Addition System Startup.	February-17	March-17	BH	May. 2020		
4	West Camp Weekly Operations Check Procedure.	January-17	February-17	BH	July-17	May-19	
5	Metro Storm Drain Daily Inspection and Startup.	January-17	February-17	BH	July-17	October-19	
6	Influent Pump Station Startup.	February-17	March-17	BH	July-17	May. 2020	
7	Slurry Tank Feed Water Re-establishment.	February-17	March-17	BH			
8	Lower Area One (LAO) Lime Weighing Procedure						
9	Generator Inspection.	January-17	February-17	BH	July-17	May-19	
10	Screw Conveyor Cleaning.	January-17	February-17	BH			
11	Stop Log Removal/Installation.						
12	Accurate Feeder Helix Modification						
13	Outlet Structure Grab Sampling.	January-17	February-17	BH	July-17	April. 2020	
14	IPS Pump and Compressor Oil Change/Greasing.	February-17					
15	Super Sax Redundant Lime Feed System Start-Up/Shutdown						
16	Super Sax Lime Loading Procedure						
17	ISCO® Automatic Composite Water Sampling Procedures.	January-17	February-17	BH	July-17	April. 2020	
18	LAO CAS Building cleaning procedure	February-17	March-17	BH	July-17	May-19	
19	Slurry Tank and Discharge Pipe Cleaning.	February-17	March-17	BH			
20	MSD Jetting.	March-17					
21	MSD Pigging.	March-17					
22	IPS Intake Screen Cleaning	January-17	February-17	BH	July-17	April. 2020	
23	Maintenance of the Freeway Wetlands	February-17	March-17	BH	July-17	May-19	
24	Effluent Grab Sample.	January-17	February-17	BH	July-17	May-19	
25	Startup/Shutdown/Emergency Shutdown Procedure for the MSD Generator	February-17					
26	ASB Grunfos Pump Replacement/Filter Cleaning						
27	Quarterly Valve Exercise	February-17					
28	Volumetric Lime Addition Startup.						
29	UltraMeg Flowmeter Maintenance						
30	BRW Staff Gauge Monitoring	February-17	March-17	BH	July-17	May-19	
31	MSD Dry Vault Monitoring and Dewatering	January-17	February-17	BH	July-17	May-19	
32	Relay Switch Replacements						
33	LAO Dialer Alarm Callout Update.	February-17	March-17	BH	October-19		
34	LAO Security Procedures	January-17	February-17	BH	July-17	April. 2020	
35	Calibrate Accurate Feeder.	February-17					
36	Calibrate pH meter	January-17	February-17	BH	July-17	April. 2020	
37	Lime Silo Cleaning.	February-17	March-17	BH	July-17	April. 2020	
38	Air Compressor Maintenance.	February-17	March-17	BH			
39	Quarterly Level Tranducer Verification	February-17	May-19	TS			
40	Screw Conveyor Oil Change						
41	ISCO Automatic Sampler Programming/ Cleaning	January-17	February-17	BH	May-19	April. 2020	
42	WCP-1 Stop/Restart.	February-17	March-17	BH			
43	SoleinoidAir Cylinder Replacement-Salina Knife Gate						
44	WCP H2S Alarm Response.	January-17	February-17	BH	May-19		
45	CO2 Addition Monitoring/Adjustement	January-17	February-17	BH	October-19		
46	MSD Loading Study Sampling/Transducer Downloading	February-17	March-17	BH	July-17	April-19	
47	Site Overview Inspections	February-17	May-19	TS			
48	MSD Pump Station Start Up/Shut Down.	January-17	February-17	BH			
49	Transducer Verification/Replacement	February-17	May-19	TS			
50	Monthy Fire Extinguisher/Eye Wash Inspections	February-17	March-17	BH	July-17	May-19	

Employee Signature: Signature on Hard Copy Date:

Butte Treatment Lagoons
Operator SOP Training Log

Operator: Steve Lubick

SOP Number	SOP Title	Operator Trained on Procedure (Date)	Operator Demonstrated Procedure (Date)	Supervisor Observing Procedure (Initials)	Operator Re-Trained on Procudure (Date)	Operator Annual Refresher (Date)	Notes/Comments, etc.
SOP	Procedure Title						
1	Chemical Addition System (CAS) Building Initial Arrival Operation Status Check	January-15	February-15	BH	April-19	April. 2020	
2	Daily Lower Area One (LAO) Cell Sampling and Analyzing.	January-15	February-15	BH	April-19	April. 2020	
3	Gravimetric Lime Addition System Startup.	January-15	February-15	BH			
4	West Camp Weekly Operations Check Procedure.	February-17	March-17	BH	June. 2020		
5	Metro Storm Drain Daily Inspection and Startup.	January-15	February-15	BH			
6	Influent Pump Station Startup.	January-15	February-15	BH			
7	Slurry Tank Feed Water Re-establishment.	January-15	February-15	BH			
8	Lower Area One (LAO) Lime Weighing Procedure						
9	Generator Inspection.	February-17	March-17	BH			
10	Screw Conveyor Cleaning.						
11	Stop Log Removal/Installation.						
12	Accurate Feeder Helix Modification						
13	Outlet Structure Grab Sampling.	January-15	February-15	BH	April-19	April. 2020	
14	IPS Pump and Compressor Oil Change/Greasing.						
15	Super Sax Redundant Lime Feed System Start-Up/Shutdown						
16	Super Sax Lime Loading Procedure						
17	ISCO® Automatic Composite Water Sampling Procedures.	January-15	February-15	BH	April-19	April. 2020	
18	LAO CAS Building cleaning procedure						
19	Slurry Tank and Discharge Pipe Cleaning.						
20	MSD Jetting.	Sept.-15	April-16	BH	April-19	April. 2020	
21	MSD Pigging.						
22	IPS Intake Screen Cleaning	January-15	February-15	BH	May-19	April. 2020	
23	Maintenance of the Freeway Wetlands	May-19					
24	Effluent Grab Sample.	January-15	February-15	BH	April-19	April. 2020	
25	Startup/Shutdown/Emergency Shutdown Procedure for the MSD Generator						
26	ASB Grunfos Pump Replacement/Filter Cleaning						
27	Quarterly Valve Exercise						
28	Volumetric Lime Addition Startup.						
29	UltraMeg Flowmeter Maintenance						
30	BRW Staff Gauge Monitoring	May-19					
31	MSD Dry Vault Monitoring and Dewatering	January-15	February-15	BH	April-19	April. 2020	
32	Relay Switch Replacements						
33	LAO Dialer Alarm Callout Update.	May-19	October-19	TS			
34	LAO Security Procedures	January-15	February-15	BH	April-19	April. 2020	
35	Calibrate Accurate Feeder.						
36	Calibrate pH meter	January-15	February-15	BH	April-19	April. 2020	
37	Lime Silo Cleaning.						
38	Air Compressor Maintenance.						
39	Quarterly Level Tranducer Verification						
40	Screw Conveyor Oil Change						
41	ISCO Automatic Sampler Programming/ Cleaning	April. 2020					
42	WCP-1 Stop/Restart.	January-15	February-15	BH	June. 2020		
43	SoleinoidAir Cylinder Replacement-Salina Knife Gate						
44	WCP H2S Alarm Response.	January-15	February-15	BH			
45	CO2 Addition Monitoring/Adjustement	January-15	February-15	BH	October-19		
46	MSD Loading Study Sampling/Transducer Downloading						
47	Site Overview Inspections						
48	MSD Pump Station Start Up/Shut Down.	January-15	February-15	BH	April-19		
49	Transducer Verification/Replacement						
50	Monthy Fire Extinguisher/Eye Wash Inspections						

Employee Signature: Signature on Hard Copy Date:

Butte Treatment Lagoons
Operator SOP Training Log

Operator: Taylor Stanich

SOP Number	SOP Title	Operator Trained on Procedure (Date)	Operator Demonstrated Procedure (Date)	Supervisor Observing Procedure (Initials)	Operator Re-Trained on Procudure (Date)	Operator Annual Refresher (Date)	Notes/Comments, etc.
SOP	**Procedure Title**						
1	Chemical Addition System (CAS) Building Initial Arrival Operation Status Check	Dec. 2017	Jan. 2018	BH	April-19	April. 2020	
2	Daily Lower Area One (LAO) Cell Sampling and Analyzing.	Dec. 2017	Jan. 2018	BH	April-19	April. 2020	
3	Gravimetric Lime Addition System Startup.	Jan. 2019	April-19	BH	November-19	April. 2020	
4	West Camp Weekly Operations Check Procedure.	Dec. 2017	Jan. 2018	BH	April-19	April. 2020	
5	Metro Storm Drain Daily Inspection and Startup.	Dec. 2017	Jan. 2018	BH	April-19	April. 2020	
6	Influent Pump Station Startup.	Dec. 2017	Jan. 2018	BH	April-19	April. 2020	
7	Slurry Tank Feed Water Re-establishment.	Feb. 2018	April-19	BH	November-19	April. 2020	
8	Lower Area One (LAO) Lime Weighing Procedure						
9	Generator Inspection.	Dec. 2017	Jan. 2018	BH	April-19	April. 2020	
10	Screw Conveyor Cleaning.	July-18	June. 2020	BH	Dec. 2020		
11	Stop Log Removal/Installation.	Mar. 2018	June-19	BH	June. 2020	July. 2020	
12	Accurate Feeder Helix Modification	Jan. 2019	April-19	BH			
13	Outlet Structure Grab Sampling.	Dec. 2017	Jan. 2018	BH	April-19	April. 2020	
14	IPS Pump and Compressor Oil Change/Greasing.	Mar. 2018					
15	Super Sax Redundant Lime Feed System Start-Up/Shutdown						
16	Super Sax Lime Loading Procedure						
17	ISCO® Automatic Composite Water Sampling Procedures.	Dec. 2017	Jan. 2018	BH	April-19	April. 2020	
18	LAO CAS Building cleaning procedure	Mar. 2018	Aug. 2018	BH	April-19	April. 2020	
19	Slurry Tank and Discharge Pipe Cleaning.	Mar. 2018	April. 2020	BH	July. 2020	Dec. 2020	
20	MSD Jetting.						
21	MSD Pigging.	April-18	Oct. 2018	BH	April-19	April. 2020	
22	IPS Intake Screen Cleaning	Dec. 2017	Jan. 2018	BH	April-19	April. 2020	
23	Maintenance of the Freeway Wetlands	Feb. 2018	Aug. 2018	BH	April-19	July. 2020	
24	Effluent Grab Sample.	Dec. 2017	Jan. 2018	BH	April-19	April. 2020	
25	Startup/Shutdown/Emergency Shutdown Procedure for the MSD Generator						
26	ASB Grunfos Pump Replacement/Filter Cleaning	Feb. 2018	Dec. 2018	BH	April-19	April. 2020	
27	Quarterly Valve Exercise	Dec. 2017	Mar. 2018	BH	November-19	Nov. 2020	
28	Volumetric Lime Addition Startup.	Jan. 2019					
29	UltraMeg Flowmeter Maintenance	Sept. 2019	July. 2020	BH			
30	BRW Staff Gauge Monitoring	Dec. 2017	Jan. 2018	BH	April-19	April. 2020	
31	MSD Dry Vault Monitoring and Dewatering	Dec. 2017	Jan. 2018	BH	April-19	April. 2020	
32	Relay Switch Replacements						
33	LAO Dialer Alarm Callout Update.	Jan. 2019	October-19	BH	April. 2020	Oct. 2020	
34	LAO Security Procedures	Jan. 2018	Aug. 2018	BH	April-19	April. 2020	
35	Calibrate Accurate Feeder.	June-18	April-19	BH	November-19	Dec. 2019	
36	Calibrate pH meter	Dec. 2017	Jan. 2018	BH	April-19	April. 2020	
37	Lime Silo Cleaning.	Jan. 2018	June-18	BH	April-19	April. 2020	
38	Air Compressor Maintenance.	Mar. 2018	November-19	BH	May. 2020		
39	Quarterly Level Tranducer Verification	Dec. 2017	Mar. 2018	BH	May-20	June. 2020	
40	Screw Conveyor Oil Change	April-19					
41	ISCO Automatic Sampler Programming/ Cleaning	Jan. 2018	Feb. 2018	BH	April-19	April. 2020	
42	WCP-1 Stop/Restart.	April-19	May. 2020	BH	Aug. 2020		
43	SoleinoidAir Cylinder Replacement-Salina Knife Gate						
44	WCP H2S Alarm Response.	Dec. 2017	Jan. 2018	BH	April-19	May. 2020	
45	CO2 Addition Monitoring/Adjustement	Dec. 2017	Jan. 2018	BH	Jan. 2020	Sept. 2020	
46	MSD Loading Study Sampling/Transducer Downloading	Dec. 2017	Jan. 2018	BH	April-19	April. 2020	
47	Site Overview Inspections	Dec. 2017	Mar. 2018	BH	Nov. 2019	May. 2020	
48	MSD Pump Station Start Up/Shut Down.	April-19	October-20	BH	May. 2020	April. 2020	
49	Transducer Verification/Replacement	Mar. 2018	June-18	BH	May-19	May. 2020	
50	Monthy Fire Extinguisher/Eye Wash Inspections	Dec. 2017	Jan. 2018	BH	April-19	June. 2020	

Employee Signature: Signature on Hard Copy Date:

Butte Treatment Lagoons
Operator SOP Training Log

Operator: Kaleb Ferriter

SOP Number	SOP Title	Operator Trained on Procedure (Date)	Operator Demonstrated Procedure (Date)	Supervisor Observing Procedure (Initials)	Operator Re-Trained on Procudure (Date)	Operator Annual Refresher (Date)	Notes/Comments, etc.
SOP	**Procedure Title**						
1	Chemical Addition System (CAS) Building Initial Arrival Operation Status Check	Feb. 2020	April. 2020	TS			
2	Daily Lower Area One (LAO) Cell Sampling and Analyzing.	Feb. 2020	April. 2020	TS			
3	Gravimetric Lime Addition System Startup.						
4	West Camp Weekly Operations Check Procedure.	Feb. 2020	April. 2020	TS			
5	Metro Storm Drain Daily Inspection and Startup.	April. 2020	Oct. 2020	TS			
6	Influent Pump Station Startup.						
7	Slurry Tank Feed Water Re-establishment.						
8	Lower Area One (LAO) Lime Weighing Procedure						
9	Generator Inspection.	Feb. 2020	April. 2020	TS			
10	Screw Conveyor Cleaning.	July. 2020	Dec. 2020	TS			
11	Stop Log Removal/Installation.						
12	Accurate Feeder Helix Modification						
13	Outlet Structure Grab Sampling.	Feb. 2020	April. 2020	TS			
14	IPS Pump and Compressor Oil Change/Greasing.	Oct. 2020					
15	Super Sax Redundant Lime Feed System Start-Up/Shutdown						
16	Super Sax Lime Loading Procedure						
17	ISCO® Automatic Composite Water Sampling Procedures.	April. 2020	Oct. 2020	TS			
18	LAO CAS Building cleaning procedure	July. 2020	Oct. 2020	TS			
19	Slurry Tank and Discharge Pipe Cleaning.	Mar. 2020	June. 2020	TS			
20	MSD Jetting.						
21	MSD Pigging.						
22	IPS Intake Screen Cleaning	Feb. 2020	April. 2020	TS			
23	Maintenance of the Freeway Wetlands	July. 2020					
24	Effluent Grab Sample.	Feb. 2020	April. 2020	TS			
25	Startup/Shutdown/Emergency Shutdown Procedure for the MSD Generator						
26	ASB Grunfos Pump Replacement/Filter Cleaning						
27	Quarterly Valve Exercise	Mar. 2020	June. 2020	TS			
28	Volumetric Lime Addition Startup.						
29	UltraMeg Flowmeter Maintenance						
30	BRW Staff Gauge Monitoring	Feb. 2020	April. 2020	TS			
31	MSD Dry Vault Monitoring and Dewatering	Mar. 2020	Oct. 2020	TS			
32	Relay Switch Replacements						
33	LAO Dialer Alarm Callout Update.						
34	LAO Security Procedures	Feb. 2020	April. 2020	TS			
35	Calibrate Accurate Feeder.						
36	Calibrate pH meter	Feb. 2020	April. 2020	TS			
37	Lime Silo Cleaning.	Feb. 2020	July. 2020	TS			
38	Air Compressor Maintenance.						
39	Quarterly Level Tranducer Verification	Mar. 2020	June. 2020	TS			
40	Screw Conveyor Oil Change						
41	ISCO Automatic Sampler Programming/ Cleaning	April. 2020	Oct. 2020	TS			
42	WCP-1 Stop/Restart.						
43	SoleinoidAir Cylinder Replacement-Salina Knife Gate						
44	WCP H2S Alarm Response.	Feb. 2020					
45	CO2 Addition Monitoring/Adjustement	Feb. 2020	Nov. 2020	TS			
46	MSD Loading Study Sampling/Transducer Downloading	Mar. 2020	April. 2020	TS			
47	Site Overview Inspections	Mar. 2020	June. 2020	TS			
48	MSD Pump Station Start Up/Shut Down.						
49	Transducer Verification/Replacement	Mar. 2020	June. 2020	TS			
50	Monthy Fire Extinguisher/Eye Wash Inspections	Feb. 2020	April. 2020	TS			

Employee Signature: Signature on Hard Copy Date: